

AMERICAN BEE JOURNAL

MARCH, 1921



SKEPS COVERED WITH STRAW ROOFS. COTSWOLD, ENGLAND.
Photo by A. H. Bowen.



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BEES---Two Frame Nuclei with Queens \$8.50

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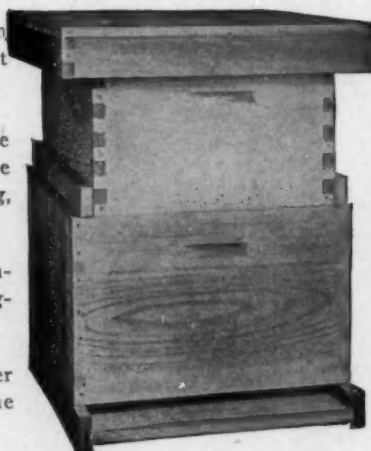
MODIFIED DADANT HIVE

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Features are: Deep frames, large one-story brood-nest, frame space ventilation, excellence in wintering, swarming easily controlled.

Glance at this illustration to compare this hive with "Standard" Langstroth hive.

You can get 40 per cent greater brood-comb area than in the "Standard" ten-frame Langstroth.



**MODIFIED DADANT HIVE
FEATURES**

1. Eleven frames, Langstroth length, Quinby depth.
2. Frames spaced $1\frac{1}{2}$ inches for swarm control.
3. Extracting frames $6\frac{1}{4}$ inches deep.
4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.
5. Langstroth "Standard" equipment easily used with this hive.

For free booklet write any distributor of Lewis "Beeware," or to

G. B. LEWIS COMPANY, Watertown, Wisconsin
DADANT & SONS, Hamilton, Illinois

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Good stock, plus long experience in shipping bees make it profitable to buy package bees or nuclei.

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BRADY, TEXAS

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THE THRIFTY KIND

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We have spent 29 years rearing queens on an extensive scale. During this time it has always been our intention to bring our bees up to a standard **surpassed by none, but superior to many.** We have been constantly improving the thriftiness, hardiness, gentleness and beauty of our bees.

We are now booking orders for May and June delivery. We still have several hundred pounds of bees with queens and several hundred extra queens to offer for May delivery. Write for circular giving full information and prices.

W. J. FOREHAND & SONS FT. DEPOSIT, ALA.

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We are now booking orders for spring delivery.

NUCLEI ON ALUMINUM COMBS

2-Frame nucleus without queen	\$6.00
3-Frame nucleus without queen	7.50

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1 lb. Package	1 package, \$3.00; 12 packages, \$2.85
2 lb. Package	1 package, \$5.00; 12 packages, \$4.75
3 lb. Package	1 package, \$7.00; 12 packages, \$6.60

Add price of queen desired.

	1	12	50
Untested 3-band Italian	\$1.50	\$15.00	\$55.00
Tested 3-band Italian	2.50	27.50	112.50
Select tested 3-band Italian	3.50	37.50	150.00

We guarantee safe arrival.

PATTERSON & WINTERS, Jourdanton, Texas

Pure Italian Queens of the Best Known Strain

Booking orders now for spring delivery of two-frame nuclei, two-pound packages, and full colonies

Prices	1	12
Untested	\$1.50	\$14.50
Tested	2.25	24.00
Select tested	3.00	30.00

Two-frame nuclei with untested queen, \$6; 25 or more, \$5.50.

Two-frame nuclei with tested queen, \$6.75; 25 or more, \$6.25.

Two-pound package hybrid bees, each \$4. Add price of queen wanted.

I have for sale 50 colonies each and hybrid bees in factory-made pine hives, 8-frame Langstroth dimensions, most comb drawn from wired foundation, shallow super, with frames included.

Price on board Bagwell, Texas, \$8.50 per colony. Will sell in lots of five or all to one party.

No disease near here. Health certificate with all I have for sale. Safe arrival and satisfaction guaranteed.

P. S. Terms one-fourth with order, balance due at shipping time.

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We are manufacturing a full line of supplies from good, soft light **Cypress**. For hive bodies, covers and bottoms we do not think it can be excelled. People are just beginning to appreciate the good qualities of this wood. All of our supplies are of standard dimensions, bodies are dovetailed. We make both one and two-piece covers. Bottom boards are made of full seven-eighths inch lumber tongued and grooved together.

Five dovetailed cypress hives, complete, 10-frame	\$16.00
Five dovetailed pine hives, complete, 10-frame	10.50
Five one-piece covers, cypress, 10-frame	5.00
Five bottom-boards, full seven-eighths cypress	4.00
Hoffman frames, per 100	7.50

Send for Catalog

ITALIAN BEES AND QUEENS

QUEENS—Nothing but three-banded Italian Stock

All we have to say for them is, if they don't suit you, return them within six months and get your money back.

Untested..... one, \$2; \$18 per dozen

NUCLEI

Choice three-banded Italian stock on good worker combs full of brood, with plenty of bees. We have a splendid lot of these that we can ship early; queens were reared late last fall and can be shipped loose on the combs without being caged.

Two-frame nuclei, with tested queen.....\$10 each

TWO-POUND PACKAGES

We can furnish two-pound packages of bees, full weight given and satisfaction guaranteed in every respect.

Two-pound package, no queen \$7.50

Write for discounts on orders of ten packages or more.

FULL COLONIES ITALIAN BEES WITH TESTED QUEENS

This is the cheapest way to buy bees, as they will cost less than the hives nailed and painted and the bees bought elsewhere.

Full colony, with tested queen, in eight-frame hive	\$20.00
Full colony, with tested queen, in ten-frame hive	22.00

HELENA, GA. THE STOVER APIARIES MAYHEW MISS.

Bees quoted from Mayhew, Miss., only.

LILLY'S
Established 1883

Seattle
Yakima
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Portland

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**LEWIS BEEWARE
DADANT
FOUNDATION
WESTERN PINE
HIVES**

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LILLY'S The Chas. H. Lilly Co.
Seattle, Yakima, Portland
Established 1883

FOR SALE

We make a specialty of shipping 2-frame nuclei. Combs are drawn from full sheets of foundation wired in Hoffman frames. Combs will be well covered with bees, and filled mostly with sealed brood and sufficient stores to do them while on their journey. Health certificate with every shipment. Safe arrival guaranteed. No more orders taken than can be filled promptly. Price of each two-frame nucleus, without queen, \$5.00. Prices of queens are as follows: Untested: 1, \$1.50; 6, \$8.00; 12, \$15.00; 50, \$60; 100, \$100. Tested queens each, \$2.50. When queen is wanted, add price of queen to that of nucleus. We begin shipping nuclei with untested queens May 1, but can ship nuclei with tested queens and without queens as early as April 15. Book your order now by sending in one-fourth of the amount of order. The balance you may send just before shipping date. Three-banded Italians only, and as good as can be purchased.

COTTON BELT APIARIES ROXTON, TEXAS

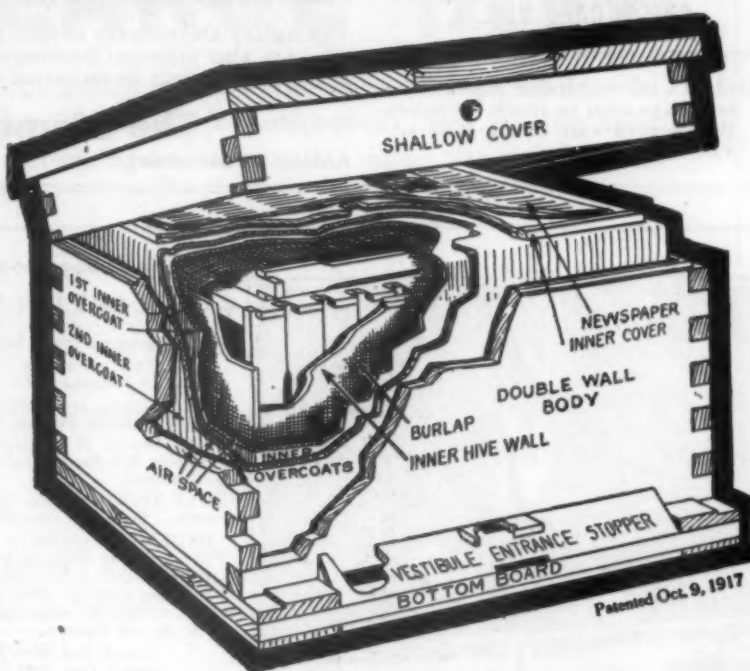
Lewis 4-Way Bee Escapes



Four exits from supers. Fits all standard board Springs of coppered steel. Made of substantial metal.

Made by
G. B. LEWIS COMPANY,
Watertown, Wis., U. S. A.
Sold only by Lewis "Beware"
Distributors.

WINTER PROBLEM SOLVED —BY THE— HIVE WITH AN INNER OVERCOAT



Furnished with Jumbo depth or Standard Hoffman Frames. In your purchase of hives for the coming season, consider the fact that if well taken care of, they should last a life time. A life time matter is a serious one and nothing but the best that money can buy should have your consideration. The Hive with an Inner Overcoat is the best on the market as to material, workmanship, and efficiency. The outside wall is made of $\frac{3}{8}$ material, the best for the purpose. Any extra cost over ordinary hives, spread over its life time, is very low. The saving in bees in a single winter, may more than pay for the entire investment. Winter losses in ordinary hives during the winter of 1919-20, in many cases, were 75 per cent, or more. What a tremendous loss. The Hive with an Inner Overcoat will winter normal colonies, without loss. Send for a special circular showing large illustrations. New 1921 illustrated catalog of beekeepers' supplies now ready. Send us a list of your requirements for the coming season.

TIN HONEY PACKAGES

- 2 lb. Friction top cans, cases of 24
- 2 lb. Friction top can, crates of 612
- 2½ lb. Friction top cans, cases of 24
- 2½ lb. Friction top cans, crates of 450
- 5 lb. Friction top pails, cases of 12
- 5 lb. Friction top pails, crates of 100
- 5 lb. Friction top pails, crates of 300
- 10 lb. Friction top pails, cases of 6
- 10 lb. Friction top pails, crates of 100

Special prices on shipments direct from factory in the East or West:

100 5-lb friction top pails	\$ 8.50
200 5-lb friction top pails	16.00
100 10-lb. friction top pails	12.50
Pint Mason jars, flint glass, per gross	9.00
Quart Mason jars, flint glass, per gross	10.00

A. G. WOODMAN CO.

GRAND RAPIDS, MICH., U. S. A.

The Diamond Match Co.

(APIARY DEPT.)

MANUFACTURERS OF Beekeepers' Supplies

CHICO, CAL., U. S. A.

Dadant's incomparable Foundation is always kept in stock. Western Beekeepers can be supplied advantageously.

BEEKEEPERS, wherever they may be located, before deciding where to obtain supplies, should write to The Diamond Match Co. for prices, and for their Beekeepers' Supply Catalogue.

This Company are the largest manufacturers in the world who make Bee Supplies. They own their own timber lands, mills and factories, and supply goods direct from the tree to the beekeeper.

Full advantage of this low cost of production is given to the purchaser.

The Apiary Department (which is in charge of experienced supply men, who are also practical beekeepers) maintains a constant excellence of product and offers unsurpassed service.

The Diamond Match Co.

Apiary Department

CHICO, CAL., U. S. A.



THE AULT 1921 BEE SHIPPING CAGE—Patent Pending

1st. It is a dark cage, much more so than the open screen cages we have been shipping in in the past.

2nd. The feeder uses pure sugar syrup. Better than Honey or Candy to ship on; it contains water as well as feed.

3rd. Feeders are made more substantial, one-third larger, and have screw cap that will not jar out.

4th. Instead of one small hole, we now use a cotton duck washer in the screw cap that has proven to overcome all the objections found to the liquid feed method.

5th. The Cage is one piece screen wire, protected by thin boards on the outside. Send for circular describing the cage in detail, prices, etc.

ORDERS are coming in daily for 1921 SHIPPING. Will book your order with 20 per cent down, balance just before shipping.

QUEENS My free circular gives prices in detail, etc. Safe delivery guaranteed within 6 days of shipping point. We ship thousands of pounds all over U. S. A. and Canada.

PACKAGE BEES
1-pound pkg. bees \$3.00 each, 25 or more \$2.85 each
2-pound pkg. bees \$5.00 each, 25 or more \$4.75 each
3-pound pkg. bees \$7.00 each, 25 or more \$6.65 each.

F. O. B. shipping point. Add price of queen wanted.

1 Untested Queen \$2 each, 25 or more \$1.75 each
1 Select untested, \$2.25 each, 5 or more \$2 each
1 Select Tested Queen \$3.50 each, 25 or more \$3.00 each
1 Tested Queen \$3.00 each, 25 or more \$2.70 each

NUECES COUNTY APIARIES E. B. AULT, Prop. CALALLEN, TEXAS

"SUPERIOR" FOUNDATION. Yes, we are ready for the rush

Many tons now ready for shipment, and our machines are running to utmost capacity. Use the best. If your dealer can't supply you, write us for price, stating quantity required. We also accept beeswax for foundation or supplies.

"Everything in Bee Supplies."

SUPERIOR HONEY CO., Ogden, Utah (Manufacturers of Weed Process Foundation)

PURE ITALIAN QUEENS, NUCLEI, FULL COLONIES

1921 Prices. Orders booked for spring and summer delivery.

Untested, 1 to 12, \$1.50; 12 or more, \$1.25 each.

Select untested, 1 to 12, \$1.75; 12 or more, \$1.50 each.

Tested, 1 to 12, \$2.50; 12 or more, \$2.25 each.

Select tested, suitable for breeders, \$5 each.

Two-frame nuclei, \$5 each. Add price of queen wanted.

Eight-frame colony, \$15; 10-frame colony, \$17.50.

Tested queen in all of these, and all good combs.

Health certificate with each shipment. Safe delivery in United States guaranteed. Satisfaction everywhere. Twenty-five per cent books your order, balance at time of shipment.

JENSEN'S APIARIES, Crawford, Miss., R. F. D. No. 3

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We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.



America's Leading Poultry Paper
Showing Champions in all Breeds

4 MONTH'S TRIAL SUBSCRIPTION 25c

U. S. Stamps accepted. Practical articles by former poultrymen. 80pp; 1 year \$1.00; 3 years \$2.00. Poultry Tribune Dept., Mt. Morris, Ill.

THE LARGE HIVE

has proven to us through fifty years' experience its superiority. In fact we have yet to learn of a single beekeeper, once having used our larger hive ever returning to the smaller one. Its use is convincing of its superiority.

BEST WINTERING, because if properly handled it gives strong colonies in fall, with abundance of stores on few frames, immediately above and behind the brood-nest.

BEST HONEY PRODUCING, because it gives large, strong colonies for the honey flow, and abundance of room for brood and honey. Shallow supers do away with queen excluders.

BEST NON-SWARMING, because there is ample laying room for the most prolific queen, ample storing room for the workers and ample ventilation for all.

THE MODIFIED DADANT HIVE has embodied in it all these advantages and lends itself readily to use with Langstroth equipment. Frames are Langstroth length, Quinby-Dadant depth, regular Hoffman style spaced, 1½ inches from center to center. Hives regular dovetailed, metal cover and reversible bottom.

Try them and be convinced

Booklet for the asking

Ask for quotations on any size lot you want

DADANT'S FOUNDATION EVERY INCH, EVERY POUND, EVERY TON EQUAL TO ANY SAMPLE WE HAVE EVER SENT OUT.

Specify it to your dealer. If he hasn't it write us

DADANT & SONS, HAMILTON, ILLINOIS

Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb Foundation and Comb Rendering for the asking

UNCLE SAM ON COMB HONEY

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Markets
Semi-Monthly Report

Washington, D. C.
January 17, 1921.

1356 B Street, S. W.,
Telephone-Main 4650, Br. 212.

HONEY - NO. 64.

BOSTON: (Jan. 15): 1 car Porto Rico via New York City arrived since last report. Comb honey movement slow but is steady because of light supply, which is all in hands of dealers.

CINCINNATI: (Jan. 15): Receipts light. With no carlot arrivals reported.
COMB: Supplies light. Demand moderate, market steady, prices holding firm.

MINNEAPOLIS: (Jan. 17): Extracted supplies moderate. Demand and movement slow, market weaker.
COMB: Although demand and movement is slow, market is firm because supplies very light.

BOSTON: Since last report, 45 barrels Porto Rico arrived. Market unsettled for extracted stock account declining sugar and syrup market.

CHICAGO: Car Colo., car Calif., car Minn. arrived. Very slow demand and movement, market weak and lower prices are generally anticipated on extracted, but it is believed comb prices will hold up pretty well.

MINNEAPOLIS: Supplies light. Dealers continuing to buy only for immediate needs. Market weaker on extracted, but steady on comb.

**This Proves Comb Honey is your best bet
Get First Grade Prices with Lewis Sections
See a 1921 "Beeware" Catalog. Write today
Ask us for your Distributors Name. It's free**

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FOR**



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G. B. LEWIS COMPANY, HOME OFFICE AND WORKS **WATERTOWN, WIS.**

Branches: Albany, N. Y., Memphis, Tenn., Lawyers (near Lynchburg,) Va.

AMERICAN BEE JOURNAL

VOL. LXI—NO. 3

HAMILTON, ILL., MARCH, 1921

MONTHLY, \$1.50 A YEAR

GLIMPSES OF CALIFORNIA BEEKEEPING

BY BEVAN L. HUGH

BEEKEEPING as an industry has taken great strides during recent years in California as in other places. Comb-honey production is carried on by so few beekeepers and on such a small scale in California that it requires no mention here. Extracted honey is produced by the carload. In spring, when oranges bloom in the southern San Joaquin Valley and the prunes and apricots bloom in the Santa Clara Valley, beekeepers rent their bees to fertilize the blossoms at from \$1 to \$3 per colony. One beekeeper of whom I have recollection had over a thousand colonies in prune, pear and apricot orchards, averaging better than \$2 per colony. Until after blossom time the bees are hauled by truck to sage, and later to alfalfa locations. In many localities bees are moved to honeydew pastures later in the season. When sage is in bloom no number of colonies can overstock a location.

The most interesting, most scientific of all the vocations under the name of beekeeping, is the rearing of queen bees in the modern way and turning them out by the thousands. After July 1 until the season closes about October, J. E. Wing, of San Jose, Calif., ships over a hundred queens per day. From March until July 1 this well-known queen rearer devotes his time to shipping queens and pound packages of bees, nuclei and colonies. (With the production of honey he has nothing to do). He devotes his time exclusively to the production of bees and queens. Hundreds of pounds are shipped every day in the spring, and it is stated that San Jose ships more bees and queens than any other center in the world. Several other beemen ship from the San Jose express office besides Mr. Wing. In his work Mr. Wing has departed from almost all the set rules as advocated by Doolittle, Root, Pratt

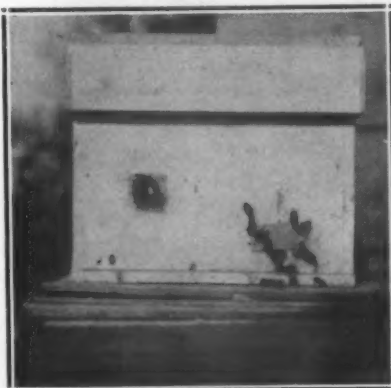
and other experts, and "according to Hoyle" has no place in his vocabulary. He has worked out a system of his own.

During 1919 his staff consisted of ten, including himself. Of these, six were queen producers, the others devoting their time to the package business. The motive power used to haul bees and appliances consists of a truck and trailer, Ford delivery and trailer, and Cadillac touring car. On the premises is an electrically driven saw that is used to cut all frames, stock hives, frames for cell-builders and nursery cages, boxes for shipping and many other necessities. For this work one man devotes part of his time. The bees in the home yard and in one of the outyards, are placed on swinging stands on account of Argentine ants. The stands are suspended by wires that are kept wet with crude oil. Ants will never cross this oil unless it dries or there comes a dearth of nectar, when they will rush over the wet wires in such numbers that they dry the oil and create a "bridge" for those following. Once on the stands it is all up with the bees, for they stand no chance what-

ever, the ants gaining complete mastery. They attack the bees and queen and carry off the honey. In a short space of time powerful colonies are reduced to lugubrious cemeteries. The ants are always victors when they once are able to get on the stands. It is necessary to see that the wires are kept constantly wet with the thick molasses-like oil.

When grafting, one has to be very careful not to lay a stick of cells where ants may reach it, for the pests at once attack the chyle and larvæ and get into the frame of brood held by the operator and thus spoil some cells.

The season for rearing queens and shipping packages usually commences around San Jose (pronounce it Sano-zay) during March. In early seasons February is the month when operations begin, but owing to cool rains and heavy frosts, nothing much of importance in actual bee work was done last year until the middle of April. During the winter a thousand twin mating baby nuclei were made up in addition to a great variety of other supplies, such as putting frames in shape for use, nailing and painting hives, etc. The baby nuclei with their thousands of midget frames and newly-invented covers were what interested me most. Mr. Wing and his assistant breeders, prior to this year, used the Root cover on their mating nuclei, but they wanted a system whereby they could tell at a glance just what was going on within each hive without having to open it or refer to a note book. Last season a block of wood that could be put in several positions was used as a signal. There were two drawbacks to this system, however, and these failings led to the present system. These drawbacks were that when a cover was lifted for the purpose of inspection the block might fall off or change its location, which would re-



The baby nucleus for mating young queens.

sult in confusion. The other disadvantage was that the date had to be written when virgins or cells were introduced or when queens were caged. The Root nucleus box is employed, but instead of the inner wood and outer paper covers being used, a double wood telescopic cover, with ventilating air space between, is found to serve to better advantage. On the side of the cover are galvanized iron signals pointed one end and square the other, made to protrude above the level of the covers or to fold below the level of the cover so as to allow nuclei to be piled on the truck when moving. On the painted cover is a set of figures arranged in a circle representing the dates of the month to 31. From the center radiates an arrow after the manner of the hand of the clock. With these signals all that is to be known about the interior workings of the nucleus may be read at a glance, and after the operator has learned the different signals he may walk by a nucleus without stopping, and know whether it needs a cell or a virgin, whether a laying queen requires to be caged or whether the nucleus requires bees, brood or honey, or all three.

All are represented by one signal on the side of the nucleus and the dates on the cover. Bees, brood, honey, bees and brood, bees and honey, honey and brood required are all represented by the other signal, and it seems queer that so much can be said with so few signals; and the beauty of the whole system is that absolutely no writing is required whatever, and everything goes along in fine shape. No queen is allowed to leave the yard that has not laid a frame full of eggs, then there is no guess work, and customers are satisfied.

Another innovation is the "stock-hive." It is the "mother" to all the baby nuclei. One stock-hive takes care of the needs of from forty to fifty nuclei. It is a hive containing frames as used in the nuclei with seventeen to the body and may be tiered three or four high if necessary. In it is housed a regular colony

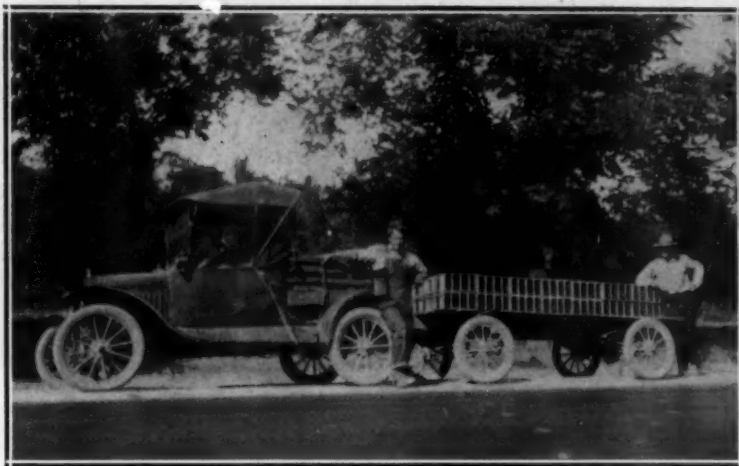
with queen, workers, drones, eggs, larvæ, pollen and honey. Its purpose is to supply whatever is required by the nuclei, such as eggs or larvæ, bees or brood, and it is much more convenient than putting three of the frames into a regular Langstroth frame. All that is necessary is to open a colony and remove the required frame and replace with the one taken from the nucleus.

Mr. Wing's system of swarm box, cell builder and nursery cage is similar to those in use by most queenmen, with slight variations. The cell cups, in which the grafts are made are all home-made, being dipped forty at a time by a scheme of his own. Instead of the cells being forced into the little blocks with a fastener the reverse end, they are secured by means of hot wax to flat pieces of wood one-eighth inch thick and seven-eighths inch square. Twelve of these are put on a bar by means of hot wax and are then ready for grafting. After the sticks have once been waxed they are good for all time, and when working in the sun are always ready for immediate use; all that is necessary is to press the cell stick on with the thumb and forefinger. The larvæ used for grafting are about twelve hours old. All

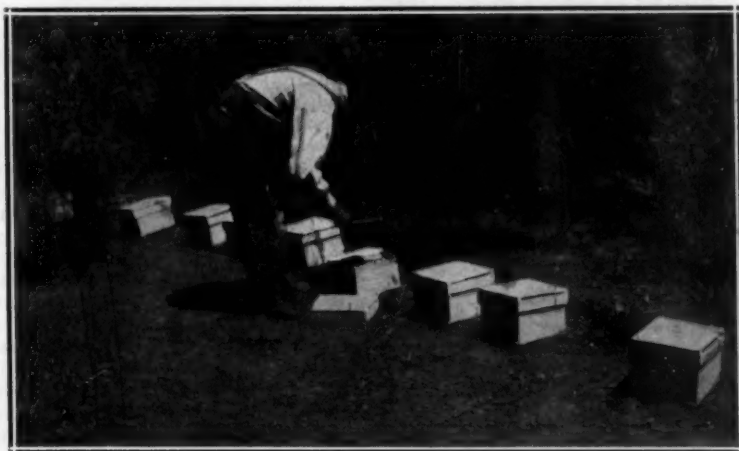
grafting is done dry, no jelly being used, and we find that fully as many are accepted by this method as when jelly is used, without all the extra trouble and time wasted. The grafts are then put in the swarm box to be accepted by queenless bees. The swarm box is in use all summer without changing bees, young emerging bees and sealed brood being given whenever necessary to keep up the strength of the cluster. The swarm box holds three frames, two of brood and honey and one containing grafts. It is always queenless except when a virgin drifts in and later commences to lay, then all operations are delayed until she is removed. The frame of cells, containing three bars of about 36 to 40 cells, is placed between the two frames of brood and honey, and in the specified time is removed and any unaccepted cells removed and replaced with accepted cells from another swarm box. Removing the sticks from the bars is a simple process, a slight pressure of a hive tool between the cell stick and the bar soon pries them loose, and another cell put in place by a pressure of the thumb and forefinger. The swarm box bees give the cells all the chyle that is necessary for them to be accepted by the cell builders.

The cell builder is a colony with young larvæ above and queen below an excluder. Two or three frames of cells are placed between frames of young larvæ and left for ten days from the time of grafting, for the bees to complete. After completion they are put either in nursery cages or are introduced direct to a queenless nucleus. Sometimes in the spring they are put into an incubator run by electricity, but this is not always necessary. If the completed cells are put in nursery cages they are returned to the colony from which they were removed until emerged, when the virgins are placed wherever required.

But queen-rearing is only part of the business. The combless package branch takes considerable time in shaking bees, building up colonies in order to make them of sufficient



A big load of package bees on the way to the express office.



Bliss Damon with a mating yard of baby nuclei, in San Joaquin Valley, in willow honeydew region.

strength to shake, making and repairing cages, making candy for long distance shipments, repairing the tin cans used for liquid feed, making the liquid feed and a great deal more as well. A large number of nuclei and colonies are also shipped. This is a part of the work of the package men, not the queen men.

Many packages have gone as far as the upper country in British Columbia and have arrived in good condition. Orders for packages are mostly for the two-pound size, as the one-pound package is found to be insufficient in bees. Tons of bees are expressed every year, and many thousand queens sold.

In San Jose during the latter part of June the flow practically ceases and the queen-rearing outfit is moved to the San Joaquin Valley, where there is an abundance of honeydew. This is very valuable for making increase, as the bees gather considerable honeydew. The drawing of comb progresses rapidly and the bees in the baby nuclei require little help from the stock hives. During this flow (which lasts from July until winter rains wash the sweet secretion from the willows) a great number of queens are reared. Queens reared during this flow are much larger and finer than those reared at any other time of the year. Thousands of queens are sent to honey producers at this time of the year, since they find fall the best time to requeen, as the queens will be young and energetic in the spring.

The moving of the queen-rearing yard to the San Joaquin Valley makes it possible to continue rearing queens, as heretofore it has been necessary to discontinue operations when the flow ceased at home. The remarkable feature about the moving of the yard was that everything was in full operation, grafting having been done the day the bees were loaded and layers caged the day they were unloaded. The bees were loaded after sundown and unloaded before daylight at their destination, 80 miles distant, and operations were resumed as soon as the bees had settled down. Queens were in all stages of development, and no time was lost by moving.

A METEOR IN BEEKEEPING

(Adapted from the Swiss Bulletin D'Apiculture.)

June 15, 1918.

My Dear Friend: I have become a beekeeper, like yourself. That will interest you, because it was after my visit at your apiary that I took up the idea to have bees also. I am an enthusiast, although my apiary is just a beginning (4 hives), but in such fine condition that all I had to do after buying them was to put on supers. I spend all my spare time there. It is just fun to smoke them, take up the supers and examine them. Every week there is some gain. I am

going to have a big crop of honey. It is delightful.

July 25—I believe I am getting the bee fever. My bees have all filled their supers and I put on several more. I am sorry I bought only 4 colonies, according to your advice. If I had had a little more backbone, I should have bought 40 instead of 4, and I'd be in clover, literally. Lots of clover honey, as it is.

August 20. My Dear Friend: Beekeeping is a gold mine. I feel as if I were a bee myself and had wings. I could fly. Just think, I have harvested 300 pounds of honey and had 3 swarms besides. If I had only bought 40 colonies, it would make a small fortune. I am going to make a big success of beekeeping. It's a regular gold mine, especially if a man understands it as I do. They talk of bad seasons, but there are flowers every year, aren't there? The only thing to do is to learn how to manage them. I'm making lots of plans. You read about that man who had 12 queens laying, all at one time, in a hive. I believe I can beat that and have hives as large as a small house. Then we'll get the honey! Just let me show you, if you're from Missouri! It's getting late in the season, but next year, we'll be in the wind. Just wait a bit.

May, 1919—Here we are again. I have 25 colonies. I bought 18 and they cost me a heap of money, but it pays. I'll have 50 by fall and some 3,000 pounds of honey. I believe I ought to more than double them, if I manage it right, and I am sure I know how.

July, 1919—Can you tell me why it is that some colonies don't prosper, while others are doing well? I tried to put several queens in 3 hives, and now instead of having more bees, they are queenless. It's befuddling. It's raining too hard when they

ought to be piling in the sweets. There is a little honey, but not much. The bigger the hives, the less bees. These Dadant hives ain't got any bees in them—just a handful! They're a humbug. And the bees are cross! Never knew them to be so mean.

November 15—My bees don't have honey enough to winter. What shall I do? Sugar is too high to feed. Could I winter them on corn syrup? I'm going to try it. Those fellows who say that corn syrup isn't good for bees, likely never tried it.

March, 1920—Have lost half my bees in winter. I am getting disgusted. The bee business ain't what it's cracked up to be.

October, 1920—For sale immediately, 10 colonies, short of stores, and 40 empty hives, with about half the frames full of combs.

STAR THISTLE

I wish to call attention to a weed that is even more important as a honey source throughout the Sacramento and San Joaquin Valleys than alfalfa. It is called "Star thistle." In its early growth it resembles the dandelion and has no stickers. Its growth is very slow, and about the middle of May it tops out and has many branches. On every branch form the buds of many flowers. The buds and flowers are the only part of the plant which have the stickers. The buds are entirely covered with long jaggers, and when they open out the jaggers turn out in every direction, forming a star from which the plant gets its name. The bloom is a deep yellow. It is spoken of as a pest throughout the State, as neither cattle nor sheep will eat it. Every vacant lot, pasture and the river bottoms are a yellow mat from the 10th of June until the heavy frosts come in the fall.

G. L. Ensign.

California.



Group at the Wing apiary. Left to right: W. A. Rafael, Harry R. Warren, J. E. Wing, Alice Salisbury.

AMERICAN BEE JOURNAL

Established by Samuel Wagner in 1861

The oldest Bee Journal in the English language.
Published Monthly at Hamilton, Illinois.

Entered as second-class matter at the Postoffice at Hamilton, Illinois.

SUBSCRIPTION RATES—In the United States and Mexico, \$1.50 per year; five years, \$6. Canadian postage 15 cents, and other foreign countries 25 cents extra, per year.

All subscriptions are stopped at expiration. Date of expiration is printed on wrapper label.

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THE STAFF

C. P. DADANTEditor

FRANK C. PELLETTAssociate Editor

MAURICE G. DADANTBusiness Manager

THE EDITOR'S VIEWPOINT

The Honey Producers' League

As we go to press word comes from Indianapolis that the annual meeting of the American Honey Producers' League was a big success. There was much enthusiasm manifested and \$6,000 was raised by those present for an advertising campaign to bring honey to public attention. The policies of the League were endorsed by beekeepers and members of allied trades. The success of the new organization now seems assured.

Kansas Honey Producers' Association Joins

After a talk from Mr. Paddock on co-operation, and a few words from our editor, the Kansas Honey Producers' League voted to join the American League. Tally one more.

The officers of the Kansas League for the ensuing year are: President, Frank Hill, Sabetha; Vice President, A. V. Small, Augusta; Secretary-Treasurer, Dr. J. H. Merrill, Manhattan.

These men are all "live wires." (This is a modern expression, but there is none better). Mr. Frank Hill insisted that he was not a good parliamentarian and would make a poor President. But he is energetic, a good beekeeper and not afraid to speak. So we are assured that he will study parliamentary usage and will prove to be just the man for the place.

The Spanish Needles as Honey Producers

Some of our beekeepers have expressed doubts as to the Spanish needles being a good honey plant, because they have never seen the bees working upon them. If they had attended the Kansas meeting at Manhattan, they would have no longer any doubts upon this. Dr. J. H. Merrill, apiarist in charge, is a very good man to draw out everything there is in a meeting, and his calls for reports from the different counties of the State were readily and fully answered. Nearly every county reported honey from Spanish needles.

At that meeting the statement was renewed that alfalfa does not produce honey at an elevation of less than a

thousand feet above sea level. There is an exception, however, and that is in a district below sea level, the Imperial Valley of California.

Some beekeepers criticised the statement that honey is sometimes harvested from the sunflowers. But there are many plants which furnish honey in one country and not in another. During my visit in Switzerland, in 1913, a beekeeper asked me whether I was sure that bees secured honey from white clover in America, because, he said, none is produced from white clover in Switzerland. And that appears to be true, in some localities at least.

Fire at Henry Dadant's Home

In the forenoon of the 17th of February, the Dadant people were very much startled by a fire alarm from the home of Henry C. Dadant. Sparks from the flue caused a fire in the roof. A strong breeze was blowing and before the Hamilton fire department could get two lines of hose pouring water on the building the roof was almost completely destroyed. The furniture was removed, much damaged by water. Our friends will be glad to hear, however, that a good portion of the loss is covered by insurance. But it is a great inconvenience to be driven out of one's home in winter. The two little girls shown on the February cover page are Henry's daughters.

How Small a Colony May be Wintered?

The required size of a colony to be wintered successfully depends much upon the location, the winter, the food, the number of flying days, etc. We have wintered colonies which might have been called nuclei, containing perhaps not over a quart of bees. A mild winter like the present one is exceedingly favorable to weak colonies, if the food is right. But until March and April are over, we can hardly be sure of safe wintering. We have seen bees dwindle as late as May, when the spring was backward and cold. Better not take chances, in the northern countries at least, and have all your colonies strong for winter.

The condensation of moisture into

frost, inside of the hive, during the coldest days, is not necessarily a bad sign, if on warm days the bees have enough warmth to thaw it and it runs out of the entrance. But a colony which is kept warm by ample covering will have but little condensation of moisture, because it will consume less than a weaker one and because its moisture will evaporate in the absorbents above, if such absorbents have been supplied.

Whatever you do, if your bees are out-of-doors, beware of cold weather in March and April. This is for our middle and northern States, because, in the South, the only requirement is to see that the bees are not short of stores, and in many places they harvest honey, after March 1.

The Work of the Colleges

I wonder whether the average beekeeper realizes how much good work the colleges are doing for our business. There are but few agricultural institutions now that do not teach the elements of practical beekeeping. There are but few of them that are not fitted to examine samples of bee diseases and give information and directions on treatment.

Some of our people seem to think that it would be better if beekeeping was not taught. They are afraid that it will increase the number of honey producers to where the business will not pay. But beekeepers are not made by any process of education. Those only who like bees and beekeeping can be educated to take proper care of bees, and it is right that they should be, for the slovenly bee owner is responsible for the dissemination of disease, just in the same way that the careless fruit grower is responsible for the dissemination of San Jose scale, codling moth, curculio, etc. The more practical beekeepers we will have, the less slovenly ones, the better they will unite upon advertising and holding prices at a reasonable level that will bring fair returns and secure ready sales.

There is no more danger of ruining the market by producing too much honey than there is of producing too much wheat. Some people are starving, just now, on this earth of ours, for want of bread. It is the distribution which is wrong and inadequate. Let us remedy it.

Friendly Friends

Our friends' friends are our friends. By the same token our subscribers' friends should become our subscribers.—Italian Exchange.

Honey-Soap

A honey soap is made in southern France, which they call "sapolime." It is claimed that this soap foams and lathers abundantly, does not crumble, and helps the healing of chapped hands, chilblains, eruptions or other diseases of the skin.

Attending Conventions

It is delightful to attend a convention of beemen in a strange locality and find smiling faces at the station. The first man that greeted me at Wilmington was Mr. C. L. Sams, who recognized me at the station. I was not left by myself a single minute after I reached my destination.

Wild Beasts in North Carolina

Bears, deer, wild cats are not rare in some districts. W. B. Robinson, of Belvidere, N. C., had a lot of beehives destroyed by the depredations of bears.

Pollen in January

W. W. King and C. L. Sams saw bees carrying pollen January 5 to 10 near Wilmington. Some say it is alder, others credit it to soft maple. The gallberry here gives the best honey crop. They have also a plant which they call "love vine," which yields honey.

Tin Pans to Settle Swarms

Mr. J. A. Ratcliffe, of Washington, N. C., told of seeing a swarm pass over the church roof and arresting it with the beating of a bread pan with a big spoon. It not only settled the swarm, but broke up the church meeting, which ended in confusion and laughter. Did the bees hear the noise?

Quebec Beekeeping

The report of the Minister of Agriculture, for the Province of Quebec, for the season 1919-20, contains a detail of the work done in beekeeping schools and demonstrations in Levis, Montreal and Joliette, by Messrs. Vaillancourt and Prudhomme. As many as 250 persons attended the beekeeping course in Montreal.

To those who might imagine that the Province of Quebec is too cold for good results in beekeeping, we will say that this report shows that the best crop in Quebec was harvested at Roberval, in the apiary of the Ursuline Sisters, and was of 4,020 pounds for 22 colonies.

Errors in Renewals

It is not our custom to "talk shop" to our readers. But it is important to suggest to them that there are mistakes made by everybody in this world and that we are not infallible ourselves. So if any errors are made concerning your subscription, please drop us a card, with as much good nature as you are able to assume, and we will endeavor to correct mistakes. Other publishers make mistakes also.

Cause of Foulbrood

It looks quite evident now that *Bacillus alvei* is a bacillus of putrefaction and not the cause of the death of the larvæ, in foulbrood. Cheshire must evidently have made some error in the text mentioned by him on pages 554-5 of his work, as he also made a very evident error when he stated that honey was not likely the means of transmitting it.

Organization Wins

A very good argument in favor of a Honey Producers' League may be seen in the fact that the industries which are best organized secure best recognition. See the Railroad Brotherhoods. They got about everything they wanted during the war, while many industries went a-begging. UNITED WE STAND.

Altitude and Nectar Secretion

In our February issue Mr. Small brought out an interesting point concerning the behavior of alfalfa in Kansas. The fact that below 1,000 feet it secretes little nectar, while yielding abundantly above that altitude is worthy of more than passing note. It stands to reason that if alfalfa behaves differently under such conditions other plants may do so also. Careful study of the influence of altitude as well as soil and climate on the secretion of nectar is important.

The Miller Memorial

We would call attention again to the memorial to Doctor Miller. The decision as to the form it shall take will be left to the committee in charge and will be influenced by the amount raised. It is hoped to have all funds in hand by June 10, which is the anniversary of the Doctor's birth. Members of the committee are anxious that every beekeeper who admired Doctor Miller shall be represented in the memorial, whether his contribution amounts to a dime or a dollar. Contributions may be sent to this office or to any member of the committee, which was announced in our last issue.

Marketing

Just now conditions looking to the future of the honey market are in the balance. There is a large surplus of extracted honey in certain quarters, while many local markets are bare. It is important that the beekeeper who has sold his own crop realize that the future market depends upon his assistance in moving the unsold honey. If the beekeepers who have sold out will help to handle this surplus the market will be stabilized at a higher price than will be the case if it is dumped upon the city markets to bring what it will.

The bottlers and big buyers generally are interested in buying at the lowest possible price. Should any considerable amount of honey be dumped onto the market under present conditions the price is likely to be depressed to the old-time low levels. There never was a time when it was more important to cultivate the local market.

Acquaintance With Your Territory

The automobile and truck make it possible to take advantage of a honey crop located as far as fifty miles or more from your present apiary sites. In order to be thoroughly conversant

with the opportunities thus presented, there is nothing better than a careful plat of your territory.

Topographical maps of most sections are available and may be obtained either by writing your State Geological Survey or the U. S. Geological Survey. These maps give altitudes of all points. Your own map, based upon these and including all information you already have, combined with actual trips for observation when the principal plants are in bloom should provide data worth a great deal. Get in touch with your county agent. He may apprise you of areas of sweet clover or alsike worth moving for.

Watch for Shortage of Food

With the extremely mild winter we have had so far there is danger that the inexperienced beekeeper may allow his bees to become short of feed this spring. A mild winter means increased activity of the bees, and increased activity means increased consumption of honey. Bees which were put into winter quarters with a super-abundance will not yet be in need, but there are many cases where, for some reason or other, bees went into winter with only moderate stores.

The danger of starvation is not the only danger. When stores become short in spring, the queens stop laying, no more young bees hatch, and unless remedial steps are taken, the colony may dwindle away; or if it doesn't completely dwindle, its value for nectar gathering is seriously impaired.

Now is the time to see that your colonies have plenty of stores, not only to keep them alive, but to allow brood rearing to proceed uninterruptedly.

Unseasonable Weather

The past winter has been unusually mild and for that reason bees with plenty of stores have wintered well. However, there is an element of danger for the spring season. As this is written (February 15) the weather is balmy as May, and the first of the soft maples are in full bloom at Hamilton. Fruit buds are swelling and there is every reason to expect severe injury to the fruit crop by later frosts.

The bees are humming merrily among the blossoms of the maples, and this new nectar and pollen will start brood rearing in earnest. Unless the beekeeper have a care, the brood-nests will be expanded beyond the ability of the clusters to protect when a change of weather comes, and there will be much chilled brood. Bees protected with suitable packing material are not likely to be seriously affected.

Brood rearing requires large quantities of honey, and this undue expansion so early in the season will rapidly deplete the supplies. It is very important that all colonies with a short supply be fed liberally to save from later disaster.

THE PLEASURES AND PROFITS OF BEE DRIVING

By A. H. Bowen

The old straw bee-skep yields up its harvest of honey but once a year, and August and September are the two months when the rural skeppist "takes up" his surplus stocks which have accumulated during the swarming season, and appropriates what he feels to be his due.

Knowing no better or quicker way of honey taking than by killing the bees, he places the heaviest hives at dusk over a pit of lighted sulphur, and very soon the bee population tumble from their luscious combs into the pit below.

Happily, however, the number of villager's bees sulphured each autumn is growing fewer; for the skeppist nowadays is only too glad to rid himself of this distasteful massacre, by allowing the expert apiarist to drive out and save the bees; taking them away for the trouble of doing it.

The advantage of this practice is mutual. The skeppist receives his hives of honey free from bees, and without the taint of sulphur to the combs; whilst the apiarist can utilize the bees secured in a number of useful ways.

Given good weather, autumn bee-driving excursions prove both pleasurable and interesting, but the apiarist must first equip himself with some suitable bee-gear to enable the driving to be done rapidly, and without causing robbing or commotion in the cottager's bee-garden. To carry the bees away, light skeps are frequently used. My choice is for light boxes with screened top and ventilated sides, as these are compact and easily handled. Half a dozen of these, a pair of driving irons to hinge the skeps together while driving, a couple of skewers, a large skep with dome top, and some sulphur matches complete the outfit.

Personally, I usually carry a few queen mailing cages provisioned with candy, as it is sometimes convenient

to cage the queens when found there and then, as then one knows where to find them.

When the bees are to be sent away, a little box of bee candy is screwed to the bottom of each crate to give extra food during confinement.

Of the old stocks, current swarms, and casts, the skeppist prefers to "take up" his new casts and the old hives because there is "virgin honey" in the former, whilst the latter being wrongly supposed to have an "old queen," are not thought suitable for stock. Thus the swarms with their freshly-combed hives are retained and being heavy are usually expected to stand the winter, for the skeppist abhors feeding of any kind.

As soon as the skeps have been marked for "taking," the bee driver is ready to commence operations.

Nothing is handier to stand the seething upturned hive upon while beating it than the stout cottage "pig bench," and this is generally pressed into service.

By means of the driving irons and skewer an empty skep is fixed above the inverted hive, and the junction made bee tight by winding round a length of sacking.

A vigorous tapping soon drives the bees with their queen into the dome above and in a few moments the lower skep is deserted. The tough nut sticks placed crosswise in each hive when first the bees are put in, act as do wires in a standard frame, and prevent the combs being broken or loosened.

When the queen has been caged, a sharp shake throws the bees into the traveling crate, the queen dropped in and the box is then placed back on the stand for the flying bees to settle.

Bee driving is not all "beer and skittles," however, owing to the curious kinds of beehives used.

Circular butter boxes and square cheese boxes are troublesome to deal with. The bees are slower than ever to run upwards. They collect in the corners, and the queen, if young and

shy, finds plenty of places in which to hide herself.

Lard buckets, cardboard hat boxes and tin trunks are little better, though if only half occupied by combs they can be cut out, and the bees brushed directly into a carrying box.

When a field of charlock is in blossom over the hedge, much new honey will drop from the combs, and robbing then is only too easy to start.

A dull day, or a wet one has its advantages, for if shelter is near, under which to work, there is no robbing or stings; and the bees settle early.

As rapidly as emptied, each skep is placed for a moment over a hole containing a sulphur match, to stupefy the remaining half dozen bees, which might have tormented the cottager's wife.

After a cup of tea, in the cool parlor, while the bees settle, and as dusk approaches, the boxes are closed up and conveyed back to the apiary.

Dealing With the Bees

Frequently two or three pounds of bees are obtained from large, strong skeps.

Hived in the dark upon 6 drawn-out combs and rapidly fed, they develop into splendid colonies for the following season.

Where heather abounds the bees collect sufficient to keep themselves without feeding.

The surplus queens, after uniting two or three smaller lots together, can be utilized for re-queening purposes.

Many driven lots are distributed each autumn to districts where these cannot be obtained, and three to four dollars each is the average price which is paid. The true old English black bee is not now so frequently met with, hybrid bees being more numerous.

But in the more remote hamlets of our country-side, native bees are still found and preserved in the time-honored way.

Though the quaint owners permit their bees to be driven in the autumn time, they stoutly maintain that no bee home is more healthy or better than their own warm skep. Maybe they are right. At any rate their views and doings form an interesting link with the past.

England.

This interesting article reminds me that, in the Carolinas, there are still tens of thousands of apiaries in box-hives and gums, which ought to be transferred or driven in a similar manner to that described above. At Greenville, S. C., an old-timer greeted me with: "Do you reckon the kind of wood the gum is made of has anything to do with the crop of honey? My daddy allowed that he could get twice as much honey out of the gum-tree hive as out of any other kind." Likely those old country skeppists similarly consider the skep as much better than any other hive. —Editor.)



A Cotswold bee garden in England.

A PLANT HONEYDEW FROM THE DOUGLAS FIR

By John H. Lovell

British Columbia and Washington State west of the Cascade range are largely covered with a magnificent coniferous forest, in which the trees are 200 to 300 feet tall. This dense forest in which the great trunks are separated by only a few feet is due to a mild temperate climate, and an annual rainfall exceeding 60 inches. The most common tree is the Douglas fir (*Pseudotsuga Douglasii*), also called red or yellow fir, which forms not far from seven-eighths of the timber. Occasionally there come reports of large quantities of honeydew gathered from the Douglas fir. A beekeeper at Victoria states that in the forenoon the ground under many of the firs, particularly isolated trees, will be well spattered with the exudation, and the needles studded with pale amber diamonds. If there are bees in the neighborhood there will be a large number of them busy gathering the sweet liquid. In some years two or three supers of sections will be gathered from this source. The honey is fair in quality, pale amber in color, with rather dark capings. It crystallizes quickly.

"Fir sugar" was known to the Indians of British Columbia long before the discovery of America; and in recent years its presence has been repeatedly reported by beekeepers, but it does not occur every year. The writer has been inclined to believe that it was an excretion of either plant lice or bark lice. Some years ago Gates observed honeybees collecting liberal stores of honeydew from spruce trees on the campus of the Agricultural College at Amherst, Mass. The sweet excretion came from scale insects (*Physokermes piceae*), which resembled dormant buds on the twigs. Pellett has also reported honeybees as gathering honeydew from the Norway spruce on the grounds of the Ontario College at Guelph, Canada. Examination showed that the sweet liquid came from the same species of scale insect. The pine-leaf scale (*Chionaspis pinifoliae*) also occurs on various species of pine and spruce in all parts of the United States. From the base of the leaves of the spruce pine (*Pinus glabra*) in Florida, honeybees have been seen to gather a sweet liquid, which was undoubtedly of insect origin. Thus, in the absence of any definite evidence to the contrary, it seemed probable that the sweet substance gathered from the Douglas fir was also an excretion of Hemipterous insects.

But recent investigations by Davidson and Teit show that this sugar is an exudation from the tips of the leaves of the Douglas fir, and is thus a purely vegetable honeydew. The sugar is not found on trees in the dense forests, but only on those in comparatively open areas, chiefly on gentle slopes facing east and north. It occurs on the leaves and branches

in white masses ranging from one-fourth inch to two inches in diameter. The sugar-bearing trees are confined to dry sections, and the sugar is excreted only during hot summer droughts. Under the action of continuous sunlight a larger quantity of carbohydrates are formed during the day than can be carried away to the growing tissues; and the atmosphere being very dry, transpiration ceases and the leaves become gorged with water, which is forced out through their tips. By the evaporation of the water, the liquid is transformed into a white solid, which may again be dissolved by rain, and recrystallize in patches at the base of the trees.

If these observations are correct, and they do not seem to admit of question, then we must admit the existence of a plant honeydew. The sweet liquid secreted by the glands on the stems and leaves of plants, as in the case of cotton and partridge pea, is as truly a nectar as the liquid produced within flowers, for in both instances the nectar is secreted by specialized cells known as nectaries. The organs of the flower are, indeed, only modified leaves. But the liquid found on the foliage of the Douglas fir, it will be noted, is forced out through the tips of the leaves, without undergoing any modification, and is thus a honeydew, not a nectar.

A beekeeper living in the Olympic National Forest, Oregon, 21 miles from Port Angeles, writes: "Four or five years ago my bees stored 150 pounds of fir sugar during a dry season. The following winter I lost many bees from dysentery, which I attribute to the effects of the sugar." This is very probable, as the composition of the fir honeydew is very different from floral honey. It contains, among other constituents, nearly 50 per cent of the rare trissaccharide, melezitose.

Do any other species of cone trees exude honey? If we admit it in the case of one species, it is not improb-

able that it may occur in other species. In the American Bee Journal for November, 1916, J. A. Heberle writes: "In Switzerland about 40 per cent of the honey crop is from honeydew, principally from the weisstanne (*Picea excelsa*. Synonym, *Pinus Abies*), a fir tree. From this fir tree the beekeepers in the Vosges Mountains, the black forest, and in parts of Switzerland, harvest large crops of honeydew, also called 'wald-honig.'" Heberle believes that this honeydew is of plant origin, since meteorological conditions seem to determine its production. When used as winter stores it produces diarrhea, and may cause a loss of 50 per cent of the bees. Whether the honeydew gathered from fir trees in Switzerland is of plant origin or not, it is impossible for the writer to determine positively, as no critical observations were made. But in the case of the Oregon fir the investigations of Professor Davidson and Mr. Teit appear to establish beyond question the existence of a plant honeydew.

Maine.

THE AMERICAN HONEY PRODUCERS' LEAGUE

By Wesley Foster

There have been a number of articles in the bee magazines recently concerning the American Honey Producers' League, and considerable interest has been manifested by the beekeepers in this organization.

One of the things that might be criticized in the League, as at present outlined, is that the entire honey trade, bee supply manufacturers and beekeepers are not included on equal membership. It will be impossible to build American beekeeping and honey production to the proportions desirable unless all of these elements can be united.

The very fact that bee supply manufacturers and honey dealers are eligible to associate membership only



Bee driver's outfit loaded on sidecar.

may arouse suspicion on the part of the honey dealer and supply manufacturer that he is not welcome, or is an interloper. The motive behind the movement to make it entirely a beekeepers' organization is the suspicion that some beekeepers have of honey dealers. Some think that their interests are not identical. The largest and most successful honey dealers and bee supply manufacturers are those who are most intimately connected with honey production. In fact, they develop into the handling of honey and the manufacturing of bee supplies for the reason that they were first successful beekeepers.

The movement will encounter opposition unless it is all-inclusive and unless the competitive elements can be united in co-operation. One of the unfortunate features of all beekeepers' organizations is that good speakers, intelligent men, but who are very distantly related to the beekeeping industry, join the associations, probably for the reason that they seek the opportunity to push ahead and think there is an opportunity for creating a position for themselves. They are doubtless attracted first to the beekeepers' organizations because they own a few colonies of bees and became interested in them in this way. They attend the beekeepers' conventions, have a good time, make friends, and the first thing you know they have been elected to some office and immediately propose a lot of new ideas which have been brought up every year during the last ten or twenty years, but eventually play out or are turned down by the beekeepers' organizations upon mature consideration.

I believe we would do well if in our beekeepers' organizations we would elect no one to an office who had not been a member of some beekeepers' organization for at least five years. It would be preferable if he had been a member of some organization for ten years. We would have more stability in our associations and would try to pull off less fool stunts than have been done in the past.

There is no doubt that the honey produced during the next twenty years is going to be very much larger in volume than has been produced during the last twenty years, and new means for distribution will undoubtedly need to be developed. However, we should bear in mind that we have new well-developed channels of trade that are valuable and have taken a great deal of time to develop and they should not be discarded until something better has been found.

The entering of beekeepers into actual marketing operations is going to increase, and the officers of these organizations should realize that the distributor is in the business as well as they and that he has to have pay for his services or he cannot continue in business. The beekeepers' organizations will, of course, have a steady influence on the trade and wherever unfavorable conditions are

developed or where any one dealer or bottler is taking an excessive profit they can stop this through proper means, and the marketing organizations of beekeepers will be strong enough to accomplish this. However, honey dealers are a distinct benefit to the beekeeping industry, and it would be very detrimental to the honey trade if they should cease their operations.

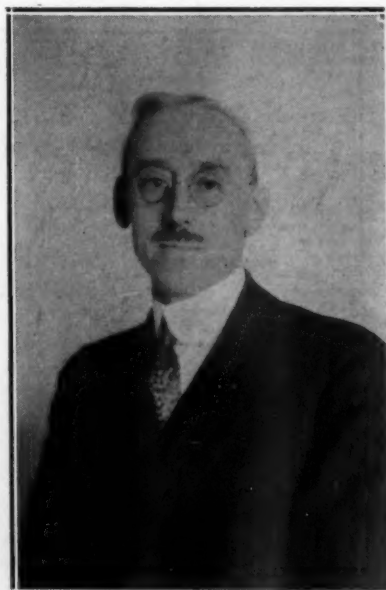
An unfortunate idea that seems to be quite prevalent in the beekeeper's mind is that the honey dealer is making an undue profit. If he could realize the conditions that confront the honey dealer and bottler, he would not feel as he does, but the idea is expressed at nearly every beekeepers' convention. The average beekeeper does not understand the difficulties, and his lack of understanding is the reason for his suspicion. If he knew more of the other fellow's business he would be much less likely to complain.

Boulder, Colo.

We believe an American organization requires a union of all who are interested in bees and honey and all that pertains to these. So we should hear from every side. Let it be borne in mind that the American Honey Producers' League does not propose to be a commercial honey-selling agency, leaving the question of sales to State and local organizations and dealers. It should be beneficial to all who keep bees or handle honey. Mr. Foster is both a beekeeper and a honey dealer, therefore doubly interested.—Editor.

NEW TEXAS APICULTURIST

Lloyd R. Watson, who has been for some time past an assistant to Dr. E. F. Phillips at Washington, has taken up his duties in charge of the experimental apiaries at College Station, Texas. Mr. Watson takes up his work under favorable circumstances, as he is especially well



Lloyd R. Watson, the new Texas Apiarist.

equipped by training and experience for work of this kind.

After graduating from Alfred University in 1905, he taught for a time, serving as principal of the high school of Alfred, New York. He then engaged extensively in beekeeping in Pennsylvania for three years, when he returned to Alfred University as professor of chemistry and beekeeping. In 1918 he became extension specialist in beekeeping and professor of apiculture in the Connecticut Agricultural College. From Connecticut he went to Washington, where he has since remained.

We look forward to much practical good to the beekeepers of the southwest as a result of the Texas experimental work. We believe that in Mr. Watson, Texas beekeepers have found a man who brings both scientific training and practical experience to bear upon their problems.

SMOKING AND SMOKERS

By Arthur C. Miller

The last sixty years have brought many advances in bee culture and in appliances, the extractor, comb-foundation, excluders, escapes, etc., but above all, the smoker; and for this latter we are indebted to the Father of Commercial Beekeeping, Moses Quinby.

Think of taking a lot of black bees in box hives and handling them successfully and profitably year after year with only smoke from a pan of smouldering wood or smoke blown from a roll of rags, and those were all that Quinby had for years. Just try it some time with your modern Italians in frame hives with perfect combs. It is no pleasure, as you will soon discover. Oft does an inspector in an emergency have to resort to the roll of smouldering cloth and blow till his head reels. If he chances to be a user of tobacco, the pipe, cigar or cigaret does fairly well. I was relating this at a bee meeting recently when one charming young lady spoke up, "Yes, a cigaret does nicely in an emergency," and then, in a sudden panic added, "I borrowed one of fathers at times." How fortunate to have a father who smokes. No, I won't tell who it was, and though Gates knows, he doesn't tell.

Quinby found tobacco more efficacious than rags or rotten wood, and he devised a little tin tube with a perforated wooden plug in each end for burning the tobacco, for he was not a smoker. The little tube was but 5 inches long and only a little over half an inch in diameter. One of the wooden plugs was flattened like a pipe stem and was held between the teeth and blown through as smoke was needed. Just think of handling a big yard of cross hybrids with no better device than that, and yet get along with it for years.

If you like diversion, make such a smoker and try handling your bees on the rapid fire system, brushing the bees from the extracting combs, etc. And that reminds me that a genial

fellow, out west, at least far enough west from here to be safe, proposes to make bee brushes with bristles of white or pink or blue or gimlet color, because he thinks black bristles irritate the bees. I presume he will scent the brushes with lavender water and tie a dainty ribbon on the handle of the brush. I suppose he would be equally fussy when kicked over and over by a mule as to the color of the mule who elected to do the kicking.

To return to smokers. Quinby later affixed a small can to the nozzle of a common fire bellows. This was an advance, but necessitated the use of both hands, or to be operated by another person. Did you ever have a kindly novice try to "help" you by operating the smoker while you were at work? It's lots of fun—for the novice.

From the fire bellows tin can arrangement it was but a step to affixing a can directly to the side of the bellows, and about 1873 Quinby made a small bellows, much like those now in use, and affixed a very small can to one side, and behold, the bellows bee smoker was born. The can or tube was a tiny affair only about an inch in diameter and five or six inches long. A stick or pencil of rotten wood was cut to fit it, and after being ignited on one end was slipped into the tube, and was ready for use. Unless the bellows were frequently operated the fire would go out. Little by little it was changed, permanent draft arranged, firepot enlarged, and today we have a nearly perfect implement, the one indispensable implement of our craft. All praise to Moses Quinby.

Rhode Island

(On page 47 of the "Dadant System of Beekeeping" the author speaks of having been often dizzy from blowing smoke over the bees, before the invention of the bellows smoker.—Ed.)

PEDDLING HONEY

By G. W. Leckenby

Mr. Foster, in January, speaks of peddlers being missionaries to introduce the honey to consumers. He has hit the right point to sell honey. I have been peddling honey in a town not far from him, with beans and vegetables, for nine years. The town has grown to a small city, and my trade has grown with it.

We only had a few stands of bees until two years ago, when my son decided to give up chickens and go to bees. The first year he produced about three tons of extracted honey. We peddled it and had it sold in November. I have bought a lot more and give half a day now and then. I am so impressed with the plan that one can do well even on a small profit that I am now making my plans to give all of my time this fall to peddling honey. I shall make my specialty of 5 and 10-pound pails. I found people were prejudiced against strained honey and granulated. I even found one of Mr. Foster's personal friends who had half of a 10-pound pail candied and felt he had been cheated, whereas he had been

given something extra good. I took the pail and explained to him that he had the best of honey, and also how to bring it back to a liquid state.

The people must be shown why honey is a cheap food, a cheaper food than syrups, and even if it is more per pound.

Beekeepers are not producing, nor ever can, at a good fair price, one-half the honey people would use if they knew how good a food it is. I know, for I have customers who use ten pounds now who used one pound or none three years ago. As a writer in the December number says, the small package makes it cost too much and the customer is apt to gauge the price by it, never thinking a 10-pound pail costs only a trifle more than a gallon of Karo corn syrup.

I have always contended that a house to house peddling was the only system to sell honey. But a poor peddler hurts. There is only one consolation, he soon starves out. The bee-men in one section could afford to keep a good man out all the time. Mr. Foster says there is lots of honey not sold. It is because you are trying to sell a jelly glass full instead of a 5 or 10-pound pail.

Colorado.

G. H. CALE TO HAMILTON

G. H. Cale, formerly of the Maryland College of Agriculture, and more recently of the staff of Dr. E. F. Phillips in the U. S. Department of Agriculture, joined the force of Dadant & Sons on February 1. Mr. Cale will have charge of all work in the Dadant apiaries, now numbering about 800 colonies, and will be on the American Bee Journal staff as Experimental Apiarist. During the life time of the late Charles Dadant extensive experiments were carried on for many years. The younger generation of Dadants have long felt the need of more practical experiments in methods of commercial honey production on a large scale. An effort is being made to determine the actual cost of production of honey as well as the comparative value of different systems of management.

It is expected that Mr. Cale's



G. H. Cale,

thorough training along scientific lines, together with the many years of practical experience in honey production by members of the firm, will make possible some developments which will be of interest and value to beekeepers generally. The thing to be sought for especially will be the method which will produce the largest crops of honey with the least labor and the smallest cost.

EXPERIENCE ON REARING AND PURCHASING QUEENS

By Phillip Rudolph

In May, 1912, I sent to a Southern well-advertised golden queen breeder for 3 of his best golden breeders, for which I paid \$15 each. I introduced them to fairly strong colonies. When the young bees made their appearance they were beautiful, bright goldens. I at once placed my order for 58 more. This time I ordered untested queens to be sent to me in August of the same year.

Everything went along fine. The goldens bred up fairly. When the honey flow opened, I was very anxious to see the work aside of my own bred queens. The goldens were slow to start for the fields, and my own bees started at least two hours earlier. About 5 o'clock in the afternoon you would scarcely see a golden start for the fields. My own bred bees, at that hour and later, were doing their best work. I watched these three colonies day after day during the honey flow. Their movements were slow, they would cluster on the outside of the hive. There was no reason for this, for they were well supplied with supers of drawn comb.

I commenced to feel cold toward the goldens. I discovered I had not the bees that were expected. These queens produced beautiful bees. It seems as though the queen breeders are losing sight of what we Wisconsin honey producers are looking for. We want bees that will fill the supers quickly. We don't care much for the fancy points of a bee; we want hustlers.

Last year I called on an old Milwaukee County beekeeper. He had 138 colonies in his yard, spring count. He had the best goldens I ever saw. We had a long talk on bees. I asked him how he liked the goldens as workers. His answer was this: "If I was a young man I would at once requeen back to the kind I always had. I haven't seen anything yet that would beat the three-banded Italians. I know I am short fifteen or more pounds per colony each year."

Let us see what fifteen pounds per colony would mean in dollars and cents: 138 times 15 would mean 2,070 pounds. At the present retail price of 30 cents per pound, 2,070 pounds equals \$621.

I regretted that I had ordered these 58 queens. They came to me on time. I introduced them at once, not losing a single one, hoping they would turn out to be workers. But the following year, during the best of honey flow,

I found that I had a bunch of loafers. I gave these goldens a fair chance, keeping them two seasons, but I was keeping them at a loss. I decided to come back to the old reliable three-banded Italians. I still had 21 colonies headed with my own bred Italians. I commenced to requeen back with my own reared queens. After making increases and requeening, I was still short 13 queens to clean up my yard of goldens. I sent for 13 more three-banded Italians, 12 from one breeder and one from a New York State queen breeder. These queens produced fairly good workers. The one queen bee which I got from the New York breeder proved to be the best. I did not trust this queen breeder when I sent for the one queen, he not being well advertised. I thought he did not know his business. You don't have to wait until the honey season is over to pick your best working colonies, as breeders. If you make a practice of going through your yard early each morning, when the honey flow is on, you will find a big difference in working colonies. You may find one or more whose bees are coming and going from the hive long before sunrise. You may say that these early returning bees were out all night. Well and good, for that shows that they started out late the evening before and were overtaken by darkness. That's my way of picking working colonies for breeders.

The following year the State of Wisconsin furnished me 5 queens.

I introduced them to 5 colonies that had failing queens, which did not breed up as they should. I gave them the best of care to get them in winter quarters in good conditions. These five colonies died during the winter. I decided there was something wrong. I could see that these brood-frames did not show up right, only thinking that it must be chilled or starved brood, I mailed a sample of this brood to Madison, and in three days' time I re-

ceived my answer. It read as follows: "American foulbrood in its highest stages." I had made a mistake in introducing these queens in diseased colonies.

After finding I had American foulbrood in my apiary I decided not to purchase any more queens until I was cleaned up of that disease. This year again I bought three queens of a well advertised Indiana queen breeder. Placing my order rather late, I did not receive these queens early enough to breed up for the honey flow, so I am unable at this date to say whether these queens will produce workers or loafers.

Wisconsin.

BEEKEEPING IN THE STATE OF WASHINGTON

By H. A. Scullen

Beekeepers who have never visited one of our Western States can hardly appreciate the variety of conditions found in such a State as Washington. With a rainfall varying from 6 inches to nearly 200, and an elevation from sea level to perpetual snow, we have a honey flora of great variety.

From the standpoint of bee culture, however, we may divide the State into five distinct regions. They will be found to blend into each other, in most cases, but in general they present quite distinct flora and climatic conditions.

First in importance, from the standpoint of present production are the irrigated districts where sweet clover and alfalfa are the main honey plants. This so-called irrigated region would include portions of the following valleys: Yakima, Columbia, Methow, Okanogan and the district about Walla Walla. The acreage under the ditch is being added to from year to year and there is at present an irrigation project being considered which, if completed, would more

than equal the present projects combined.

Most irrigated sections are quite well occupied, but there are a few exceptions.

A second region might be represented by that portion of the State which is too arid for cultivation and as yet is not under irrigation. In general, it consists of all of the State east of the Cascade Mountains which is not included in the preceding or the two following regions.

The flora is largely sages and similar arid plants, most of which are of little value to the beekeeper. This region may, however, prove to be of more value than is expected when further investigated, since many species of plants found here are closely related to flora of considerable value in honey production in other sections of the West. The annual rainfall is as low as six inches in some portions of this region.

The third region is the extreme northwestern part of the State, where the annual rainfall increases to considerably over 20 inches, and with it the growth of timber increases. Here we find a variety of honey plants which under favorable conditions yield a surplus. Among these are fireweed (*Epilobium angustifolium*), white clover, snowberry (*Symphoricarpos*), dandelion and alfalfa. Due to less rainfall, fireweed is far less dependable than in the coast region.

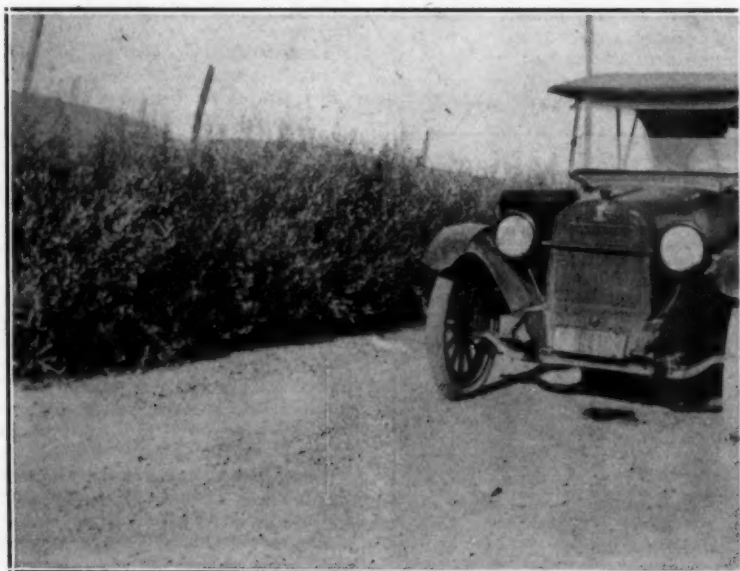
There are very few commercial apiaries in this region, but there are some promising locations.

The fourth region includes the east and southeast counties of the State, where wheat raising is the leading industry. As would be expected, honey flora is not abundant in most localities. There are, however, a few small beekeepers who are doing well. White clover is the principal honey plant, but many native plants are of considerable value.

The fifth and largest region includes all that portion of the State lying west of the Cascade Mountains. Here we find the largest number of apiaries, the greatest variety of flora, the most disease, the largest number of box hives and neglected bees, the best market and the most failures. Fireweed (*Epilobium angustifolium* L.) is the leading honey plant, but white clover, alsike clover, Oregon maple, vine maple, Cascara, huckleberry and many others become important locally. The annual rainfall varies from 20 inches to nearly 200.

Foulbrood in the State

American foulbrood is found in most localities in the Yakima Valley, about Walla Walla, Spokane and Colville. West of the Cascade Mountains it is found in nearly every county. No samples of European foulbrood were seen on the east side of the mountains, but it is very bad in many counties on the west side. It is doubtful whether there are any west side counties without at least some trace of European foulbrood. It is reported serious in British



Sweet clover by a Washington roadside

Columbia west of the Cascades and has been identified by the writer at St. Maries, Idaho.

The Spray Problem

The loss from poisoning of bees with orchard spray was apparently as serious as the loss from disease. Our estimate, based on a questionnaire sent to a large list of beekeepers in the fruit districts, places the loss at \$50,000 for the summer of 1919. Many of the large honey producers in orchard districts are contemplating moving to other locations.

THREE WEEKS AT BEE CONVENTIONS

By C. P. Dadant

Following the announcement on page 13 of the January number, I went to Wilmington, North Carolina, for the State meeting of January 11. Wilmington, close to the ocean shore, is a fine place, one of the old cities of the original 13 colonies, and a ship-building port, on Cape Fear River. When I reached the station from the train, I saw a smiling face looking at me. It was Mr. C. L. Sams, Extension Specialist in Beekeeping. We had never met, but he had seen my photo, and was looking for me.

The meeting was well attended, though it was held at the extreme southeast corner of the State. The Association has a live secretary, Mr. J. E. Eckert, who works without pay, with great enthusiasm. The weather was mild, which is perhaps not astonishing in a winter like the present one. Mr. W. W. King reported having seen bees carrying pollen on the 5th, probably from the soft maple or the alder.

The Carolinas are geologically divided into three quite distinct sections—the coastal plains, low and flat, with marshes and sandy lands; the piedmont regions or foothills; the mountain sections, covered mainly with timber. These differ slightly in vegetation, and consequently in the number and quality of the honey plants. But all are good for beekeeping. Cotton is grown everywhere, and in most places it yields some honey, especially from extra-floral nectaries. However, some of their best honey producers are the tulip-tree, which many call "tulip poplar" or even simply "poplar," and the sourwood, with gallberry, goldenrod, etc., in the low lands.

Traveling through the immense areas of sandy lands of the coastal plains, I was reminded of the "Landes" of southwestern France, south of Bordeaux, near the Gulf of Gascony, where wife and I visited some extensive honey producers in 1913; those lands produce very similar vegetation to these—pitch pine, scrub oaks. But they also produce heather, a splendid honey plant, which does not exist in the Carolinas. Could not the heather be acclimated in this country? If so, another very important resource would be added to those already known. Heather makes honey which is rather dark and

strong in flavor, but of good quality otherwise. I spoke of it to several of our southern friends and propose to secure some seed for a trial. It grows wild, wherever the trees are not too thick, and needs no cultivation.

There must be some wild sections in North Carolina, for one of the members, Mr. W. P. Robinson, living at Belvidere, south of the Dismal Swamp, gave an account of the depredations of bears in his apiary.

A great deal of enthusiasm was shown towards increasing the membership and joining the League, but no action was taken in this respect. The officers elected were B. Anderson, of Terra Ceia, President; D. W. Monroe, of Chadbourne, Vice President, and J. E. Eckert as Secretary.

The very next evening I took the train for New Jersey, and arrived at Trenton the following day at noon. New Jersey beekeeping has several live wires: Dr. Headlee, the State Entomologist; Richard D. Barclay, the President of the Association, and Elmer G. Carr, Secretary, who is also Extension Specialist and Teacher. Mr. Carr is indefatigable.

A laughable incident occurred in my making the acquaintance of Dr. Headlee. I was very anxious to meet him, and at different times asked about him, when he was not present. After one of the sessions a large bald-headed man came to me to ask for addresses of reliable queen-breeders of Italy, as he said they intended to secure some, through an Italian entomologist, whose name I did not retain. I furnished him the addresses. A little later, talking with other beekeepers, I again said that I would like to meet Dr. Headlee. "Why, there he is. See that big bald-headed man? That's Dr. Headlee." The joke was on me, but I returned to him and grabbed his hand. He laughed heartily. But I'll not forget his face, after this.

The Beekeepers' Association of



E. G. Carr.

New Jersey is making an interesting experiment. There is, in Burlington County, a large plain, of some 25,000 acres, barren, sandy, where the vegetation of scrub pines and oaks is so short that a man can look over their tops. In this practical desert, surrounded by civilization, they have established an apiary for the fertilization of queens, bringing to it both breeding nuclei and colonies containing many choice drones. In this isolation they are bound to succeed in securing select matings. Seventeen queens were mated there the past year. The experiment is to be enlarged and imported stock is to be used. This is certainly very interesting.

Leaving Trenton at 9 a. m. January 14, I reached Washington, D. C., in the afternoon and found our good friend, Dr. Phillips awaiting me at the station. We went directly to his home, some 15 miles from the city, in Maryland, where I had the pleasure of meeting his father and mother, who were about to leave for another visit farther south among their children. Mr. and Mrs. Phillips Sr., live in Ohio, near a very much traveled road, and I learned incidentally that he sells all his honey and several tons from others, to travelers that pass by in autos. All that is required is the sight of the apiary and a sufficiently conspicuous sign of "HONEY FOR SALE." Is this not another evidence that if people only believe that our honey is pure, there will be unlimited sale for it? Of course! What is sweeter than honey?

I was somewhat astonished at the young-looking appearance of both Mr. and Mrs. Phillips, Sr., having a son of apparently mature age, like Dr. Phillips. But why should I call them old? Mr. Phillips is only 3 months older than I, and I don't feel very old yet.

Dr. Phillips has a delightfully pleasant wife and 3 fine boys. I spent a very pleasant afternoon there.

I saw the office, laboratory and apiary, at Somerset, just about a block away from Dr. Phillips' home. That is where the studies are made of all the samples of bee diseases which come for examination from all parts of the country. That is also whence start the extension workers who urge the better management of bees, upon all bee owners. Much good has been done, by the study of diseases, and much is still done by diagnoses of the numerous cases of foulbrood and similar troubles. The study of wintering has gained a great deal by the researches made here. For all this, method, activity and punctuality are necessary. These qualities are evident in a visit to the laboratory. Nothing is neglected which may bring about a step forward. They are constantly on the lookout for good workers. But good workers are rare, in a specialty like this. I met several, in my trip, who are certainly well chosen. There, I met A. P. Sturtevant and G. H. Cale. We spent the next day at the Capi-

tal. I had never yet been in Washington, although I have visited nearly every State. So one may know that my day was well filled. In fact, I was tired out before the day ended.

The next night, I again took a sleeping-car (seven times in all during my trip) and the next morning I was at Lynchburg, Va.

DEMONSTRATION APIARIES IN IOWA

By E. W. Atkins

During the season of 1920 the Extension Department of the Iowa State College, in co-operation with the U. S. Department of Agriculture, outlined a project entitled "Increased Honey." The object of this project was not to necessarily increase honey production by making more beekeepers, but rather to increase the crop by making the apiaries which already existed more productive by better methods of beekeeping. The project called for a series of demonstration meetings in a county to be conducted in five visits throughout the year in order to discuss the subject in hand just previous to the time of its application in the apiary. In carrying out this work the underlying principles of bee behavior were emphasized rather than methods. This gave rise to the feeling that the work was largely theory, which sounds very nice, but fails to function in bringing in the dollars and cents. Such being the case, it was decided to apply the work by the specialist managing a number of colonies in different parts of the State, hence demonstration apiaries were established.

Six were started last spring. Where possible, five colonies in each apiary were taken over by the specialist and the remainder of the colonies were maintained by the owners for the purpose of comparing the results with those obtained by the specialist. These were called check colonies. The first thing done where the bees were not in modern hives was to purchase two-story 10-frame Langstroth hives and four shallow extracting supers for each colony. These were fitted up with full sheets of comb-foundation. On the second visit to the apiaries, which was made at the time the dan-

delions were coming into bloom, the queen was given plenty of room for egg-laying. To do this where 10-frame Langstroth hives are used it is necessary to give an extra hive-body, as the average queen is capable of laying sufficient eggs to have at least the equivalent of twelve Langstroth frames of brood by the beginning of the main honey flow. In some cases the bees were in immovable frame hives. In transferring them the principle of giving plenty of room was followed by placing a new 10-frame hive-body on top. As soon as the queen became established in the upper body the bees were drummed from the lower body, with the exception of enough to care for the brood. The lower body, with its bottom-board, was then placed just to the rear of its stand and the entrance was contracted. The upper hive-body was then given a bottom-board and placed on the old stand and the queen given all the room she required. Twenty-one days after this operation all the bees had emerged from their cells in the old hives. Each old, immovable frame hive was then drummed again by placing an empty box on top which the bees could run directly into. The bees from each hive were shaken out of the box at the entrance of the new hive, which contained their old queen. The combs were then cut out of the old hives and rendered into wax. The bees were only transferred in this way when it was found that they were free from American foulbrood.

In one apiary of ten colonies, both American and European foulbrood were present in every colony in the spring. Four of the colonies were very weak; these were united, leaving six fairly strong colonies each in one-story hives. This manipulation was the first step in the treatment of European foulbrood. At the beginning of the white clover flow the colonies were shaken for American foulbrood. If this disease had not been present the shaking treatment would have been omitted, as it was found that since the colonies had been strengthened, and with honey coming in, the European disease became less serious. Shaking necessarily weakens the colonies, as they are without

daily emerging bees for at least three weeks. This is not a desirable condition for bees with European foulbrood, but the operation is absolutely necessary in the case of American.

Towards the end of the clover honey flow untested Italian queens were introduced to the colonies, this completing the treatment for European foulbrood. In this apiary all the colonies were treated for the disease, although only five were used in the demonstration group. This was necessary because none of the colonies would have survived the season had they not been treated, and those that were treated would have again been exposed to American foulbrood.

Swarm Control

Three colonies in one of the other apiaries were treated for American foulbrood at the beginning of the clover honey flow. Also at that time all the other colonies were manipulated to control swarming. To do this the queen of each colony with one frame of brood was placed in the center of another hive-body containing nine frames of full sheets of foundation. The remainder of the colony was stood to one side until the body containing the queen was placed on the bottom-board. A queen excluder was then placed over this hive-body and two shallow extracting supers given. The remainder of the colony was then placed above the supers. Queen-cells were, of course, started on the brood which was isolated from the queen. However, these were not destroyed, and in only one case from twenty-two colonies treated in this way did a swarm issue. This occurred in the western part of the State, in an apiary where the twelve check colonies all swarmed. The reason for the colony swarming was that a swarm from one of the check colonies went into it and two days later came out, taking with it most of the bees from the demonstration colony.

The clover flow was exceptionally good in the western part of the State, where three of the demonstration apiaries were located. In the southeastern section the flow was only moderate, as it terminated rather suddenly. Absolutely no honey was obtained in the fall, with the exception of in one of the southeastern apiaries where most of the surplus was obtained from Spanish needle, and one of the western apiaries where a considerable quantity of honeydew honey was obtained. Before preparing any of the light honey produced by the demonstration colonies for sale, five combs, or approximately 25 pounds of honey were set aside for each demonstration colony. This quantity was in addition to that which the bees had in the hive-body occupied by the queen. The following table gives the amount of honey which can actually be sold from each apiary. The entire crop produced above the hive-body occupied by the queen in the check colonies is credited to their production:



Preparing demonstration colonies for winter.

Location of Apiaries	No. of Demonstration Colonies	Total Production of Demonstration Colonies		No. of Check Colonies	Total Production of Check Colonies	
		Lbs.	Lbs.		Lbs.	Average Production per Colony
Council Bluffs, Pottawattamie County	5	1049	209	14	1174	84
Malvern, Mills County	5	500	166	1	28	28
Fonda, Pocahontas County	5	543	108	2	96	48
Iowa City, Johnson County	5	165	33	1	30	30
Mt. Pleasant, Henry County	5	300	60	5	250	50
Milton, Van Buren County	5	152	25	2	40	20

The larger yields obtained by the demonstration colonies were obtained chiefly on account of the queens having plenty of room for egg-laying previous to the honey flow and by keeping the working force contented during the honey flow by giving an abundance of room and sufficient ventilation during the honey flow.

It will be noticed that there is not the big contrast in the average production of the demonstration colonies and the check colonies in the last three counties given as there is in the first three. This can largely be explained by the fact that swarming was not nearly so intense in the localities showing the least contrast. In the excessive swarming location nearly every check colony swarmed at least once, whereas in the other section (eastern) but few of the colonies swarmed once. Swarming was, of course, partly controlled in this section by the American foulbrood treatment which some of the check colonies received.

While the results obtained are considerably in favor of the demonstration colonies, it is felt that next year they should be far more favorable, as both sets of colonies were on an even footing in the spring. Nothing was known of the age of the queens in the demonstration colonies.

The demonstration and check colonies were all wintered in the same way and all had about the same amount of honey in one hive-body only in the spring. This fall each demonstration colony was given a young Italian queen, provided with an abundance of honey, and given adequate protection from the cold. Having provided these conditions for the demonstration colonies only it will be interesting to compare the rapidity with which the two sets of colonies in each apiary build up in the spring.

RED CLOVER AS A HONEY PLANT

By C. F. Bender

I have lately finished reading Mr. Frank C. Pellett's admirable work on "American Honey Plants." His estimates of the value of the different plants are very careful and accurate,

as I am able to judge, having kept bees myself in three widely separated localities. To his article on red clover, I feel like adding my own bit of evidence. Up to 1913 I found it hard, as others apparently do, to believe that bees ever gathered honey from that source. I had watched carefully, in dry seasons and wet, and had only occasionally seen bees working on red clover, even though I had the famous long-tongued Italians. Sometimes they brought in pollen from red clover, but I could never be sure that they brought honey.

In 1913 our last good rain came on April 14. With only an occasional sprinkle, it kept getting dryer, until my last hope of even one pound of surplus honey had faded. Pasturage was burned brown, there were no weeds to produce fall honey, and the hives were empty of all but hungry bees. The weather was remarkably hot.

On July 6 I made a visit to one of the outyards, intending to provide more shade, and to see if any of the combs had melted down. I was astonished to find the bees working briskly, about half of them bringing in the characteristic red clover pollen. On opening some hives, I found that all were storing quite rapidly, some were working in supers.

As there were 80 acres of red clover just across the road, in full bloom, you may be sure that I visited that field. There could be no mistake, they were not getting honeydew, but honey from the blossoms.

On visiting my other outyard I found the same conditions, as they also had a fine field of red clover in easy reach. I made a hasty trip home to get supers, and had a busy time for the next two weeks, until the clover was cut for hay, when the flow stopped promptly. At my home yard there was no red clover in reach, and the bees were starving.

I want to mention what I think is

important, that the clover in both fields was the mammoth red, or peavine. I think bees work on it oftener than on the common red clover.

The result of the two weeks' flow was 7,000 pounds of comb honey, and I am sure that it was red clover, pure and unmixed. The quality was good, a little more amber than white clover, with a little stronger flavor.

Having had this experience, I am sure that bees do store red clover honey rapidly at times, though very rarely. There are some things that I don't know yet. The following season was just as dry and we had the mammoth red clover in easy reach, but the bees did not work on it. The clover midge was very bad that year, and may have prevented the blossoms from secreting nectar.

Illinois.

BEEES IN NEW YORK CITY

Bees must be something of a novelty in the biggest city in the world. The picture shows the apiary of J. S. Morales, at Seaman Avenue and 207th Street, in New York City, only two blocks from Broadway. These colonies were built up from two-pound packages received in New York on April 20 and May 5. The bees were given drawn combs and fed syrup to the amount of two pounds to each package. Sufficient honey was gathered for winter beside some surplus. The hives are only 20 feet from the sidewalk, but no one passing was stung. The sources of honey are locust, sweet clover, goldenrod and aster.

FINDING THE QUEENLESS HIVE

By Wm. Muth-Rathmussen

The scheme of W. H. Bacus, page 426, is quite ingenious, but one may not always have queen-cells on hand or be willing to sacrifice them. I have another way which is always available and sure. My hives are all numbered on front and back. On the side of each super is tacked a piece of section, on which I write the number of the hive when taking the super off. Previous numbers are struck out. If a queen is found in a super, I know by the number where she belongs and return her immediately to her own hive. I always keep a queen cage handy for this purpose when emptying supers. This may happen once or twice in a season; some years not at all. As a rule, the bees will not go through the bee-escape and leave the super, if the queen is there, but will show fight when the super is opened, and must be subdued with smoke. If I find many bees in a super, which has been standing in the honey house over night, I know that a queen is there, and I get my smoker and queen cage ready for use.

I have, however, had one exception to this. One Saturday I took off a number of supers and did not begin emptying them until the following Monday. There were no bees in any of the supers, but in one of them I found a queen sitting quietly and alone on the face of the comb. The



Apiary two blocks from Broadway, in New York City.

bees had all left her over Sunday and gone out through the bee-escape over the window. She was returned to the hive bearing the number on the super tag.

Another advantage of those tags is that I can credit each colony with the number of sections it has finished during the season. Thus I find which are the best to breed from the following year.

California.

LUMBER CONDITIONS IN THE UNITED STATES

I have before me copy of an address given by Mr. Edward Hines, the celebrated lumberman of Chicago, and who handles in the neighborhood of one billion feet of lumber yearly, as delivered before the Fifth Annual Convention of the National Association of Purchasing Agents at Chicago. Hines, in the course of his remarks, gave statistics on the amount of lumber available in this country, as follows:

Fir	762 billion feet
Yellow pine	312 billion feet
Western pine	246 billion feet
Redwood	74 billion feet
Cedar	62 billion feet
Hemlock	37 billion feet
Hardwoods	39 billion feet
Spruce	35 billion feet
White pine	28 billion feet
Cypress	23 billion feet
Miscellaneous	341 billion feet

This shows that the amount of white pine and cypress available is very small as compared with the harder woods, which so far have been deemed unsuitable for use for beehives.

Mr. Hines gives figures to show that we use in this country from 35 to 45 billion feet of lumber yearly.

But he further states that the United States owns publicly about 200 million acres of forest lands and that if this amount was doubled the Government would own practically enough timber to supply the needs of the country in perpetuity.

Mr. Hines contends from his figures and from his experience that the price of lumber cannot drop materially, in fact, he says he expects to see lumber prices hold practically to where they are at present. Of course, his ideas should be shaded somewhat, but it remains to be seen whether or not his predictions are true. However, the figures given above as to lumber available and lumber used yearly are authentic and we believe will be of interest to our readers.

SOME QUEEN EXPERIENCES

By Allen Latham

The past season has been unusually prolific in its yield of happenings in the queen-bee world of the unexpected and even abnormal. It is because these happenings interested the writer that he is now offering them to the readers of the American Bee Journal.

Twice during the summer of 1920 have I found while cutting out queen-

cells, the occupant with its head to the base of the cell. One of the wonderful instincts of insect life is the ability of the caterpillar before entering the pupal stage to take its posture with head towards the end of the cocoon which has been prepared for the exit of the moth. So the queen-bee larva, after it has spun its imperfect cocoon, assumes a position in which the head is adjacent the external end of the cell. Why did the two larvæ mentioned above fail in this instinctive procedure? Does this offer only another example of the "survival of the fittest"?

Once this past summer I opened an artificially reared cell in which were two occupants. These two queen pupæ were not of the same age, one being about 3 days older than the other. I believe, as a rule, that when by mistake a queen-breeder puts two larvæ into a queen-cup the bees afterwards remove one of the two. That they do not always do so I have had occasion to verify upon two or three occasions.

The past summer has given stronger belief in the theory that queens have an antipathy for one another only for a brief period, or periods, of their lives. This antipathy is in evidence even before the queen emerges from the cell and lasts for several days, and in some instances much longer. Generally, however, it disappears as soon as the young queen becomes pregnant and heavy with eggs. After that it is only slightly in evidence, and is often so quiescent that a queen will not tear down unguarded cells. The following experience will illustrate my point:

Colony 34 was dequeened and prepared for cell-building by the removal of brood and the giving of cups. The cups were accepted and a fine lot of cells were developed and capped.

A day or so before the cells would normally be removed, the hive was opened to see how many cells would be available. A third or half of the cells were torn down, and a search revealed a queen nearly ready to lay. The cells were removed and also the queen, and a new set of cups were given, as the colony had a large force of good nurse bees. Upon opening the hive the following day to graft the cups given early that morning, the cups were found rather mutilated and evidence suggested a laying queen. The removal of the next comb showed a patch of some thousands of eggs freshly laid. Search revealed a beautiful young queen heavy with eggs.

It is difficult to explain with any certainty the presence of these two young queens in that colony, but there is every reason to believe that both were there at the same time and there with those queen-cells. Why had they not fought, and why had they not cut down every cell?

One day this past summer, while taking up queens from the mating nuclei, I found one in which the bees revealed restlessness. The queen was lightly balled, but unharmed, and I caged her with attendants. I gave an other look into the hive and there was

another loose ball of bees. In this was a second fine looking queen, which I also caged. Probably the explanation here is that one nucleus had recently swarmed out and that the queen had entered this other one. Up to that time the bees had not allowed the two to get into mortal combat.

It is my custom to cage the old queen when introducing a new one, and to set both queens side by side for two days or so. The old queen is then removed. Sometimes, in the hasty picking up of the old queen, she is injured, no special care being used. Even if killed she is put into the cage beside the caged new queen. Upon one occasion, in September, an old queen was so severely pinched in grabbing her from a mass of bees into which she was scurrying, that a portion of one of her ovaries was exuded; the exuded mass was about the size of a large radish seed. The queen was caged with the expectation that she would soon be dead. Two days later, as she appeared as lively as a cricket, she was given some escorts and plans were made to introduce her into a home colony to see whether she would ever prove useful again. I regret to state that she died about the tenth day. It seems remarkable that she could have lived even that long, and the fact that she did may help to explain why queens survive their trips through the mails as well as they do.

One day, while catching a queen, the wing which was grasped came off and the queen hustled along the comb apparently unharmed. This suggested a new way of clipping a queen. Grasp one large wing with thumb and finger of one hand and the other large wing with thumb and finger of the other hand. Give a quick jerk of the hands apart. One wing will be yanked off, the other is usually uninjured. I tried this with a number of queens, and so far as I observed no harm resulted. In one case a small drop of liquid appeared at the spot where the wing was attached to the body. I regret to state that I did not keep track of this particular queen and cannot say now whether she suffered permanent injury. I do not recommend this method of clipping with valuable breeding queens, but can recommend it for the run of queens, because of its ease of carrying out. One's tools for such a procedure are always to be found. Queen ants, soon after mating deliberately get rid of their wings.

During the height of the honey flow last summer I could not at once take care of several hundred virgin queens. It is my custom to give virgin queens, very soon after their emergence, to the mating nuclei, but for two weeks last summer I practiced caging them with attendants and giving them to nuclei as soon thereafter as possible. It was while caging some 70 virgins one day that I had a surprising thing happen. To cage the virgin I allowed her to lie in my closed fist and ran her into

the cage, disliking to handle the wings of virgins. Suddenly a sharp sting was felt inside the hand which held the virgin. So sharp was the pain that I involuntarily slapped my quickly opened hand against my thigh. A virgin queen dropped in the process to the ground, but I could find no worker bee. I said to my son who was helping me, "I really think that I was stung by a queen-bee then."

A few days later, while caging another lot of virgins, the same thing happened. And again my quick involuntary movement prevented me from stating with absolute certainty that no worker was present, though none was seen as the queen fell to the ground.

In neither case was any sting felt in the wound and the pain was identical with that of a worker sting. It was possibly a little more sharp at first, but it did not last long, and very quickly changed from the usual sensation into an itch. I was now positive that I had been twice stung by queen-bees, but I realized that my proof was not beyond doubt. The nursery cage might in each case have had a worker clinging to it unseen, and when I shook the queen into my hand this worker went in unseen by me.

Fortunately, I was privileged with a third trial. This happened a few days later as some 80 queens were being caged. This time I so far controlled my involuntary movement as to open my hand quickly, and there was the queen—alone—and **she was just in the act of withdrawing her sting from my skin.** I now knew beyond all doubt that I had been stung three separate times by virgin queens. I also knew that many others had tried to sting my hand, for I would have the itching sensation and also the smell of the royal poison on the palm of my hand. All three stings were inflicted upon the thin skin between the fingers, suggesting that the queen would more frequently sting but for the toughness of the skin of the human hand.

Connecticut.

TOO MUCH HONEY

By John Protheroe

Nearly as startling a phrase as "too much money!" Can there be such a situation? Go, ask any queen-breeder at the height of a heavy honey flow. As long as it lasts, he grumbles and digs out his smothered cells from the sticky bars, and longs for that "Better Land," where there is a gentle, stimulative flow from dawn to dusk, from March till October; no dead intervals and no violent spates of nectar. A couple of days' gentle rainfall, then a hot sun on acres of sweet clover; these are conditions which make the honey producer chuckle, "Aha, my supers!" and the queen-breeder groan, "Oh, my cell-bars!"

Of the superlative wisdom of bees the world in general has long been

convinced, though there are moments when the most experienced beekeepers have serious doubts and have been known to call them pesky little idiots. Several German writers, notably von Buttel-Reepen and Pastor Gerstung, would have us believe that they are reflex automata, blindly following the irresistible dictates of mass or community instinct. Elderly moralists of all denominations, on the other hand, delight in pointing out the wisdom and virtue of the busy bee, the prize Sunday-school scholar of the animal world. The next occasion on which you observe a band of crazed robbers desperately attempting to burgle a hive through the blind hand-cut, do not go for the kerosene jar, pause awhile and cogitate on individual volition, on free will, on responsibility and culpability, on the impelling force of instinct, on aberrations and conflicts within this force—and if the boss gets after you try and entangle him in the same train of speculation.

The subject is an avenue into the deepest profundities. Consider for a moment the ethical side of the matter. Should you allow yourself to give way to a feeling of anger towards an individual bee that has stung you? Where there is no responsibility there can be no culpability. To relax one's philosophic self-restraint may become not merely an illogical action but a lapse into the grossest injustice. To swat the dogoned little beast, who has sacrificed his sting and life in obedience to community instinct—how are we to describe such unmanly conduct?

Still, it is not always good policy for a practical beekeeper to cultivate philosophy; most of us are too much inclined that way by nature.

Let us, therefore, content ourselves with saying that there is all the ap-

pearance of foolish behavior on the part of *apis mellifica* in tending a bar of queen-cells with assiduous care only to bury them alive in a wall of honeycomb, thereby rivalling in horror the culmination of the opera "Aida." The bees indeed, do seem to have moments of doubt as to the outcome of this change of policy—they sometimes make an eleventh hour compromise, leaving the tip of the cell exposed, so that the hatching queen can just escape imminent burial. Very often they don't. Is this immuring of unfortunate virgins due to some obscure conflict between warring impulses in the mass mind of the colony, or is it due to a conscious change of policy brought about by changed conditions, as when a tentatively moist politician becomes bone dry?

Leaving the philosophical side of it to beguile the chores of winter, let us examine it as a matter of practical difficulty. If the larvæ were all well fed up to the time of capping, then an incubator would offer a satisfactory solution to the problem. It need not be a very accurate or delicate machine. I have seen good queens hatch from cells discarded in an ordinary lumber-built shed, after three days and nights (in an Alabama summer.) Unfortunately, the slackening of the supersedure impulse affects the feeding of the newly grafted larvæ, and a cure for this trouble is harder to find. Does it lie in weakening the cell-building colonies a little, in letting them simmer down, so to speak, below boiling point? This does not appeal to me as sound procedure. Will relief be found in giving them an intermediate super (forgive the nonsensical expression), in which they can store the honey? Theoretically, this is a beautiful idea; everything will work out perfectly. The field bees will devote their energies to this empty super, and the nurse bees, unimpeded, and stimulated by the general prosperity of the colony, will feed the queen-cells better than ever, for field bees never bother with larvæ, and nurse bees know nothing of comb building. Practice, however, works out differently; it is found that the cells are neglected; the will and the energies of the community as a whole have been diverted; the supersedure impulse has been superseded by the storing impulse. What happens it is difficult to say. The nurse bees either go afield sooner in obedience to "the will to store" or neglect their charges for some other function. The directing force, the spirit of the hive seems to become wavering and uncertain, and confused fluctuations occur in the beautifully balanced division of labor.

Doolittle was never tired of preaching the necessity of working with and never in opposition to these hive impulses. Skill lies in creating conditions that bring about desired impulses in a colony, and then working with them and turning them to account. This, of course, is the foundation of modern queen-rearing, in



W. J. Sheppard, Chief Inspector of Apiaries of British Columbia. The Province provides fully for extended inspection, with a corps of seven inspectors.

contrast with the crude methods of early experimenters, who imprisoned or removed the laying queen. It remains to be seen whether or not it is possible to create hive conditions that will cause the superseding impulse to remain more powerful than the storing impulse during a heavy flow of nectar. Both have the same ultimate purpose, the continuously projected life of the community, that insistent, imperative that drives the bee to work or sting itself to death. Any sign of failure on the part of the queen has the more immediate effect on the well-being of the colony, and one would argue that an impulse founded on this condition must take priority; but bees become victims of a hoarding mania—for us a beneficent mania—creating the honey surplus far greater than their needs. During the height of a flow this collecting fury remains dominant. What is the puzzled breeder to do?

Let him locate in a neighborhood blessed with a steady succession of moderate flows, without too much of anything, not cursed with alternate feasts and famines, where there is always a taste of something to be had, where throughout July and August the hives do not "grow beards," as the French say. Let him experiment with incubation. Let him develop strains which show constancy in cell feeding. (Is it possible to breed in the marvelous cell-building qualities of Carniolans and breed out the swarming habit? Are these attributes complementary and inseparable?)

These are the best suggestions I can offer. What advice have others to give?

Rustburg, Va.

Our witty contributor has given us a problem indeed. But it is one of those that do not worry the beekeeper much, even when he tries to rear queens, for queens reared in such rare conditions are successful enough to make up for the little trouble of an extra storing of honey.—Editor.

FIVE QUEENS IN ONE HIVE

In company with Mr. Frank Pillsbury, Secretary of the Monroe County Beekeepers Association, I was examining some very strong hives of bees in one of my yards and was very much surprised to find two queens apparently living in harmony.

As we further examined the hive we found three others apparently working and contented, and there were sixteen queen-cells which had not been torn or touched. Mr. Pillsbury, who is an old, experienced beekeeper, declares that he never before saw any such thing, and he does not understand it, and neither do I, nor any others whom we have made inquiry of, and there are some experienced beekeepers in this part of the country.

The five queens that are working in the hive, which is a Jumbo hive, are apparently contented and happy, and the hive is full of larvae and

brood. Did you ever hear of anything like this, or has any one of your acquaintances ever heard of a similar occurrence?

J. S. BRYAN.

Rochester, N. Y.

Answer.—Yes, we have heard of such happenings, but mainly in swarming time, and never in October or after the season was ended. A few of our leading beekeepers have held that several queens could be kept in one hive. But when all is said, the queens disappear, all but one, when the beekeeper thinks he has succeeded in this wonderful achievement.

I would venture the assertion that, before spring, all will have disappeared but one. However, we have seen an old queen and her daughter quite a while in the same hive, the old queen evidently being tolerated because she has lost her queenly disposition. As Huber writes: "Would you readily believe that an insect, a simple bee, be susceptible to jealousy? Yet you must accept this statement, for nothing is truer. . . . Jealousy of each other causes queens to fight one another. In your case, by some unaccountable cause, those queens are not susceptible to jealousy. It is a freak.

We will be glad to have further statements from you after winter.—Editor.

THEORY AND PRACTICE

Berlepsch wrote: "Learn theory, otherwise you will be bungling all your life." Indisputable is also the proposition: "Experience is the best teacher." Theory and experience must go hand in hand completely and correctly if perfection in anything is to be attained. "The keeping of bees according to the principles of theory and experience" is, therefore, the title of the latest edition of the work written by the above genius. Only he who is well conversant and harnessed in theory and who can look back upon a long and extensive prac-

tice can make an honorable demand for the title of bee-master.—Dr. Dzierzon (Unedited letter translated from original manuscript by C. W. Aeppler.)

DIFFERENT RACES OF BEES

"I do not know *Apis Indica* in India itself, where I understand there are two varieties, yellow in the plains and black in the hills; but I do know it well in Ceylon, where only the black variety is native, and where *A. Dorsata* and *A. Florea* are also found. It is quite black and about two-thirds the size of the German bee (common bees). Its drone-cells are exactly the same size as the German worker-cells and, so far as I remember, its worker-cells run rather less than 6 to the inch. My experience is that it is good-tempered and an energetic worker, but rather prone to the production of fertile workers.

A. Florea is about half its size (or rather less), black-brown, with very pronounced white stripes. It builds in the open, usually choosing the middle of a dense bush. It is fairly gentle, and I think its poison must be of a different composition from that of *A. Mellifica*, as it does not seem to act so quickly on the blood.

A. Dorsata is a handsome yellow bee about the size of a hornet, and is a perfect devil. I understand Mr. Benton handled it with comparative impunity; but my experience was that, even when clustered in a swarm, it is dangerous to approach. It builds a single comb, 5 or 6 feet in diameter from the branch of a tree, and migrates to follow the flowering of the "nillu" (a species of balsam), deserting its nest completely and frightening away large mammals, including the elephant.—H. Campbell in the June-September Bee World.

We do not think that either of these bees can ever be acclimated, in the United States, but the matter is interesting.

THE EDITOR'S ANSWERS

Questions are answered in order received. As we receive more questions than we can answer in space available, two or three months sometimes elapse before answers appear.

Queen Rearing

I am trying to go into the business of raising queens next spring. I was thinking of buying some good Italian queens direct from Italy, which I saw advertised in the bee papers. Would you advise me to start my business that way? Can you let me know of several good queen men, where I can get some good breeding stock? I have been in the bee business for 10 years, but for extracted honey only.

VIRGINIA.

Answer.—Since the world war, it has been very difficult to secure queens from Italy, owing to the slowness of the mail, both in this country and in Europe. We ourselves imported queens from the well-known Italian breeder, Enrico Penna, and have received but very few alive. On the other hand, if you wait until you receive queens from there to

breed from them, you will find yourself delayed so that it will be next to impossible for you to rear any queens for sale the same summer. It is very necessary that the queens from which you breed should be tested for at least one summer in order to make sure of the honey-producing qualities of their workers.

So, if you decide to import, we would advise you to wait until the following year to try to rear queens for sale.

Otherwise there is no doubt that it is preferable, if possible, to breed from imported stock. Mr. Gaetano Piana, of Castel San Pietro, Bologna, is a very reliable breeder.

Situated as you are, I doubt whether you will find it as profitable to rear queens for sale as to produce extracted honey. The South is the most suitable section for queen-raising,

because bees are produced there much earlier than in the North.

However, those matters can only be settled by actual trial.

Increase

I am just a beginner. I want increase by the Alexander plan, but a little different: Queen killed in old hive and one frame given to new hive. Set new hive under and old hive upon queen-excluding board. Introduce a queen to each hive by cage method. After 4 or 5 days take down the old hive and set both side by side on old stand. After some days separate little by little each hive. Will it work or not?

WASHINGTON.

Answer.—Yes, it will work; but a much more simple way would be to divide the colony in two and put a new queen in the queenless part. As bees are more likely to go where their old queen is, you must put the new queen and hive a little nearer than the other to the spot originally occupied by the old colony.

Improving Pasture

What would you do for beekeeping, if you lived in a vicinity where the only resources for honey were flowers in August, with nothing between?

Answer.—In such a dilemma I can see but two things to do, either move the bees to better locations or get your farmers to plant alsike clover in place of red clover. If they try it they will be pleased with it. You might also secure the sowing of sweet clover in out-of-the-way places and in land that needs renovating. Nothing is better than sweet clover for this purpose, as its roots reach 2 feet or more in the soil. It is not a dangerous weed, for it is easily eradicated when you no longer need it.

Italians

Please tell me if Italian queens of pure stock are ever marked with black on the abdomen, similar to the workers. I bought two colonies of pure Italian bees and tried to requeen my hybrid colonies. The two Italian queens were solid leather colored and the bees were all three-banded. The queens I raised were marked with black on the back like my hybrid queens and produced hybrid bees. Were these queens pure and all impurely mated, or do you think my bees were not pure Italians? There were no drones in my hybrid hives, and an abundance in the Italian hives.

NORTH CAROLINA.

Answer.—Queens are very irregular in their markings, and I have seen very dark queens that looked like hybrids produce as fine bees as any. The only way to test this matter is to judge by the worker progeny of those queens. Nothing can be positively decided by the color of either queen or drones.

Size of Hives

1. I am making a permanent brood-nest out of one 10-frame deep body and a standard extracting super. How does this compare in size with your large hives?

2. Will I have to rotate these shallow supers every year to keep candied honey out of the brood-nest?

3. Do you have trouble with candied honey in your large hives? I do not want to rotate supers, for the reason that I use only 8-frame in my extracting supers. I want to leave that super of honey there year after year. I know that more or less brood will be reared in it, but I expect some of the honey in the outside combs will remain there for years.

OHIO.

Answers.—1. The story-and-a-half Langstroth 10-frame hive is a little larger than our Modified Dadant, so it would be large enough if the queen went readily up and down, especially down.

2. If you have candied honey every year in your supers and the bees do not remove it, it may be necessary to "rotate," as you call it; but if the bees will remove that candied honey

when the super is put below, which I understand is what you mean by "rotating," they will surely remove it from the upper story when they are in need.

3. We have never had any trouble with honey candying and embarrassing the bees. But we do not believe it is due to large hives, only to climatic conditions. Your 8-frames in a 10-frame super ought to keep the queen out of it generally, for the cells of such combs are too deep for her to lay in. The workers have to cut them down for her use, and she must be very positively short of room for them to do this. Without the shallow super for brood the 10-frames hive is much smaller than the Modified Dadant hive.

Melon Juice—Size of Hives

1. Does watermelon juice do any harm to old and young bees; also to brood in fall and winter?

2. I have introduced queens in three swarms of black bees. First I killed the old queen and smoked them good; then I let the young queen run in at the entrance. The queens are good layers now. Was this the right way to requeen them?

3. I have two swarms of bees and gave them full sheets of foundation in spring, wired the frames and extracted forty pounds of honey from each swarm, eighty pounds in all. The bees are in good condition now and are still working. They were well shaded from the sun. Was this a correct way to keep bees?

4. My bees are in eight and ten-frame standard, regular depth hives. Which is the best hive, eight or ten-frame?

SOUTH DAKOTA.

Answers.—1. Watermelon juice has very little sweetness in it and would probably prove injurious for winter. But the bees rarely gather enough to make it a matter of consideration. If it could be reduced enough to make fairly sweet syrup, it might do for them to use in breeding in the summer and fall.

2. Smoke introduction is safe during the honey crop. We never succeeded with it at any other time.

3. Yes, shade is not injurious to bees, though some people think too much shade is objectionable.

4. Eight-frame hives are too small for good queens to develop their fertility. Even ten-frame hives are a little short for a good queen. Many people use two stories at the time of breeding. We prefer deeper frames and at least ten of them.

Dark Honey—Uniting Swarms

1. A year ago last spring, I sent for a three-banded golden queen from California. The comb honey they have gathered is dark in color and the capping is much different in its makeup—much rougher than from my other Italians. This hive gave a swarm this summer; they, too, make the same kind. It surely must be sweet and white clover honey, as that is our main crop here. This honey is the same color the whole season through.

2. Can I treat honey with carbon bisulphide without hurting the honey for sale?

3. Would gunny sacks be all right to put next to the brood-frames, and then make a box that will extend down over each hive, half way or more, then chuck straw between hive and box, for outdoor wintering?

4. This summer I had three swarms come out about 15 minutes apart. The first one I hived, and the other two hived themselves in the same hive. A few days later three more swarms issued, a few minutes apart, and they all clustered in one bunch in an apple tree. Does this happen very often?

IOWA.

Answers.—1. The bees have nothing to do with the color of the honey. However, some colonies may gather honey from some flowers farther away than others, and of a different kind. We have seen some colonies gather honeydew, while other colonies in the same apiary gathered white honey.

2. Yes. The carbon bisulphide will not injure the honey. It evaporates readily.

3. Yes; but it is best to shelter hives all the way down and even on the underside.

4. Yes; swarms are likely to unite when issuing, and the oldest writers on bees give directions on separating swarms when they have united. Usually, the best way is to find the queens and cage them, putting each queen in front of a separate hive, and trying to give each a portion of the swarms.

Partly Filled Supers

1. Is it good to put the half-filled sections back on the supers next spring so the bees can fill them, or eat them out? I have about 65 of them.

2. I put 24 supers on the 12 hives; is that right?

Answers.—1. It is all right to put the sections back on the hive next spring so the bees can either fill them or use the honey. The only drawback is if the honey is not of the same quality as that which is already in the sections. In that case, it might be better to extract it in the fall and let the bees clean them, so the honey will all be of one grade.

2. Your colonies were probably not strong enough to fill two supers each. That is why so many sections were not filled. There are seasons when colonies will fill several supers and others when one super is even too much. It takes a great deal of experience to foresee such things, and even the best beekeepers make those mistakes.

Bees on Roof

Please tell me what you think of keeping bees in an upper story or attic, two or three stories above ground, compared to the usual way on the ground. As bees seem to naturally choose a home high above ground in a tree or building, I see no reason why it will not prove successful.

GEORGIA.

Answer.—No, there is no objection whatever to keeping bees in an attic, if you have room for them and can supply them with entrances, so they may fly back and forth without hindrance. Several large apiaries have been kept on top of buildings, in cities, and there are certainly many such yet. Mr. Chas. F. Muth, of Cincinnati, used to keep quite a large apiary on the top of his house, as he had a flat roof.

Feeding for Winter

I began feeding about September 10 for outside wintering, bringing the average weight per hive to 75 pounds. But the weather was exceedingly warm for the season; frost, which generally appears September 15 to 16, held off until October 2. Upon re-weighing them I find a reduction of about 6 pounds, in one case even 12 pounds. There has been much brood-rearing, hives being full of bees. Should feeding have been postponed until cooler weather, or until first killing frost?

WISCONSIN.

Answer.—Part of that loss is probably evaporation, part wax production and another part breeding. The condition which you describe is excellent and the bees should winter splendidly, with sufficient feed.

Sowing Sweet Clover—Increase

1. I live adjoining the railroad right-of-way, and was thinking of sowing the right-of-way in sweet clover, any particular variety. When is the best time to sow it?

2. I noticed in your questions and answers in the Journal for September, page 312, you outline a plan for increase. Can one expect any surplus from a division like this? This boy's case fits mine. I am a farmer and my farm lies two and a half miles from where I live. My bees swarm too much for best results. I usually have two swarms per colony a season.

3. Why is it bees don't work on buckwheat after dinner.

INDIANA.

Answers.—1. Sow the white sweet clover. Better sow it in the fall or early winter.

2. This answer, on page 312, was by Dr. Miller, one of the last answers he made. If there is enough of a crop, both the divisions might give a surplus. But this is always a doubtful matter. If you want as much honey as possible, better make no divisions.

3. Apparently the honey in the blossoms of buckwheat is produced only early in the day. We sometimes see the bees on it in the early afternoon, and conclude that there has been a little more honey produced than usual, on such days.

Red Clover Bees

I would like to know something of the red clover bees, and where I may obtain them.

WEST VIRGINIA.

Answer.—The Italian bees work a little oftener upon the red clover bloom than the common bee, but none of them succeed in getting honey from it, except at irregular periods when the corolla is shorter probably owing to dry weather. The so-called red clover queens have not yet, so far as we know, produced bees that would work on red clover at all times. Every breeder keeps trying, but the goal is probably far y't.

Spanish Needles

I am situated in close proximity to thousands of acres of meadow on marsh land, which is sometimes flooded in the fall by the waters of the Great South Bay, the meadows being submerged for the period of one or two tides only. Goldenrod, asters, heartsease and some wild carrot thrive on these meadows. I am wondering if Spanish needles would grow here, and if so, where seed could be purchased. Can you advise me regarding the probability, also as to the seed?

Brookhaven; L. I.

Answer.—We have no doubt that the golden-yellow Spanish needle of our marshes would thrive on land inundated with fresh water. Whether it could be made to thrive upon land flooded with brackish water, remains a question. We would gladly send you a few seeds during the winter, if you remind us of it.

The Spanish needle is a *Bidens* and there are other varieties of the *Bidens* that thrive on brackish soil. The *B. bidentoides* belongs to the shores of the Delaware River and the Bay. The *B. Eatonii* is found on the brackish shores of the lower Merrimac River, in Massachusetts. The *B. laevis* also belongs near the coast of the Atlantic. The same is said of the *B. trichosperma*. Whether these would be honey producers remains to be tested. Ours is the *Bidens aristosa*. The western bur-marigold (*Bidens involucreata*), (American Honey Plants, Pellett) is also a very good honey plant. Both grow on wet soil.

Perhaps some of our American Bee Journal readers will be willing to inform us concerning those seashore varieties of the *Bidens*, if they have ever taken notice of them.

ODDS AND ENDS

Dr. Miller's Memory

At the meeting of the Federazione Apistica Italiana, at Ancona, Italy, January 23, official mention was made of the death of Dr. Miller which had been already announced in the magazine published in that city, "L'Apicoltura Italiana." Resolutions of regret were passed to be forwarded to Mrs. Miller and to Dr. Miller's friends in this country.

Idaho Bees

Idaho reports 35,900 colonies of bees in 1920, compared to 21,903 colonies in 1910. The honey crop for 1920 was 1,208,229 pounds, or a per colony production of 34 pounds.

Inspection Work in Utah

We have before us the biennial report of Mr. F. B. Terriberry, State Inspector of Apiaries for Utah, for the period ending November 30, 1920.

The report, though short, strikes us as illustrating what can be done by efficient management, combined with active co-operation on the part of the good beekeepers of the State.

Under the foulbrood law, inspection is carried on by the county system, under the State Bee Inspector. Although the appropriation for inspection is only \$6,000 and although the per diem pay of county inspectors is but \$3.50, inspection was efficiently carried on in all counties but five, and some of these have very little beekeeping. Only one bee inspector resigned owing to the small pay.

There were 39,131 colonies of bees in Utah in 1920, or an increase of about 2,400 colonies over 1919. The total honey harvested was 3,002,245 pounds, or a per colony average of 76 pounds, of which it is estimated that 35 per cent is consumed within the State.

Both American and European foulbrood are to be found in Utah, but inspection, combined with education, is gradually overcoming these diseases. The State Inspector makes spring and fall trips over the State for a general survey of conditions.

The inspector of Salt Lake County reports that practically all the bees within 10 miles of the Murray smelter were either killed or badly damaged by fumes in September and October, 1920.

Mr. Terriberry and the beekeepers of Utah are both to be congratulated upon their efficiency.

Census Reports

Washington shows 53,940 colonies of bees in 1920, as against 33,884 in 1910. The 1919 crop of honey was 1,502,843 pounds. West Virginia claims 89,873 colonies, as against 110,673 colonies in 1910, and the honey crop for 1919 was 919,689 pounds. Massachusetts has 6,573 colonies as compared to 7,464 in 1909. The honey crop for 1919 was 70,769 pounds.

Poor Season

Last season was the poorest in this locality for many years, as far as a honey crop is concerned. To some extent this was due to adverse weather conditions in time of the main honey flow. Many colonies had to be united and fed in the fall to keep them from starving in winter.

In this locality we have no climbing milkweed, but some of the adjacent counties are blessed with it and beekeepers extract honey by the thousands of pounds. A beekeeper with 100 colonies extracted 10,000 pounds of honey from this source in 1911. Be-

cause you say this weed is a serious pest to the farmer, I hesitate to introduce it.

Bro. Alphonse Veith.

Indiana.

Extent of Bee Culture in Spain

It is calculated that Spain has approximately 1,600,000 beehives, nearly all of which are found in the Valencia, Aragon, Valladolid, Guadalajara and Majorca districts. The annual production of honey amounts to about 19,000,000 kilos (approximately 41,887,400 pounds), which at the price of 2.50 pesetas per kilo represents a value of 47,500,000 pesetas (1 peseta equals \$0.198 at par value). To this figure there must be added the value of the beeswax. Under normal conditions some 60,000,000 pesetas worth of honey and wax are yearly produced in Spain.

—Commerce Reports.

Increased Honey Production in Guatemala

"At the present rate of increase in number of hives," writes Vice Consul Goforth, "Guatemala will soon become an important producer of honey." Climatic and other conditions prevailing on the entire Pacific slope of that Republic very nearly approach the ideal for the successful operation of apiaries. Bees work throughout the year and, consequently, the production of honey per hive is very much greater than in the United States. Moreover, it is of excellent quality and flavor. During the calendar year 1919, honey to the value of \$48,917 was exported from Guatemala to the United States. It is probable that this amount will be exceeded during the current year; in fact, present indications are that the figures for 1921 will show exports of honey exceeding \$100,000 in value.

—Commerce Reports.

Ten-Frame Hives

I make my 10-frame hives 14- $\frac{3}{4}$ inches wide on inside, that makes 32 $\frac{1}{4}$ x $\frac{1}{4}$ x $1\frac{1}{8}$ inch sections just fit; then on one side of the super I use screws to put it together instead of nails, so when taking the honey out of the super I just remove the one side that is screwed on and pry the ends out a trifle and in that way the sections are removed without any trouble.

In your Journal you say after-swarms are not desirable. I had one come off June 15 last year. I put them in an 8-frame hive. They made me 70 pounds surplus, which I sold for 30c per pound—\$21. Not bad, do you think?

John W. Korb.

Kansas.

Florida Bees

Preliminary report of the census for Florida gives the number of colonies in 1920 as 41,237, an increase of 7 per cent over 1910.

The production of honey was 962,488 pounds, or a per colony production of nearly 24 pounds.

Rhode Island and Delaware Census Report

The 1920 census gives 2,976 colonies of bees, as compared with 6,910 colonies in 1910. The value is given as \$11,819, or about \$4 per colony.

Honey production is valued at \$6,371 on 27,703 pounds, or an average of less than 10 pounds per colony.

To what is the rapid decrease in number of colonies due? Possibly foulbrood is rampant in Delaware.

Rhode Island reports 686 colonies of bees in 1919 (our friend Miller must have a majority of them), against 1,267 colonies in 1909. The amount of honey produced in 1919 was 6,488 pounds.

Nuova, or the New Bee

"Nuova, or the New Bee," is the title of a new book written by Vernon Kellogg, well known entomological authority. It is a story book for children "from five to fifty," though possibly the subject matter would hardly suit those of so tender an age as five years. The book is well written and is brightened by several songs written by Charlotte Kellogg, besides fifteen fine colored engravings by Milo Winter. It contains 150 pages, is cloth bound, and retails for \$2.25. Houghton, Mifflin & Co., of New York, are the publishers.

"New" Ideas

A conical top, to direct smoke against the bees, was used by Columella, over a pan of burning wood. "New ideas" are not always so new.

Arthur C. Miller.

Honey Exports

According to a recent report of the Secretary of Agriculture approximately 25 per cent of our farm products are exported. Certainly honey has not and is not keeping up its end in this volume.

We may be excellent honey producers, but we are as yet "infants" in the marketing of our product. If 25 per cent of all honey produced found foreign markets there would undoubtedly be no stagnation in honey prices at home.

The League in Action

Beekeepers generally will be interested in knowing that the American Honey Producers' League, through its tariff committee, has filed a brief at Washington showing why a tariff should be enacted to protect the American markets from foreign honey. Mr. Colin P. Campbell, of Grand Rapids, Mich., is chairman of this committee, J. C. Henager of Salt Lake City, Utah, and Kenneth Hawkins of Watertown, Wis., the other members.

The brief shows the number of colonies of bees and the annual production of honey in this country, together with some figures on the cost of production, and also information as to the amount of foreign honey imported into this country.

The League asks a minimum of 5 cents per pound duty on foreign honey.

The new National organization promises to secure results for the beekeepers on such a scale as has never before been attempted. Freight rates, tariffs, legislation, markets and every possible interest of the beeman will be watched constantly. Enough organizations have already joined the League to insure that it will succeed.

As soon as there is time to show what can be accomplished, the rest will hurry to get into the band-wagon.

The Kansas State Meeting

We were fortunate in having with us E. W. Atkins, J. F. Diemer, Carl F. Buck, A. V. Small, O. A. Keene and F. W. De Temple, Secretary of the

Quality Bee Supplies

FROM A

Reliable House

Without fear or favor, I place my BEE SUPPLIES and SERVICE before you.

It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using MONDENG'S GOODS.

Quality is first—save time when you put your goods together, by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

I am ready to meet your urgent needs.

Send for my new price list.

Closing out all Langstroth and Wisconsin hives and supers. Also Langstroth triangular top-bar frames and eight-frame D. T. supers for 4x5 sections. Will sell at cost price. Write for quotations.

CHAS. MONDENG

146 Newton Ave. N. and 159 Cedar Lake Rd. Minneapolis, Minn.



QUEENS

Write for our catalog of high grade Italian Queens. Pure mating and safe arrival guaranteed.

Prices for 1921:

1 to 4 inclusive.....	\$ 3.00 ea.
5 to 9 inclusive.....	2 90 ea.
10 or more.....	2.80 ea.
Breeders.....	12 00 ea.

JAY SMITH (Route Three) Vincennes, Ind.

Italian Bees by the Pound in Packages

GOLDEN QUEENS

3-BAND QUEENS

We are better prepared than ever before to handle a large demand for both queens and bees by the pound. Let us send you one of our 1921 circulars and late price lists. We are now booking orders almost daily for next spring delivery. Let us book your order now, so as to assure prompt delivery when the bees or queens are wanted. Only a limited number of orders will be accepted for booking, as we are absolutely determined to take only as many orders as we can handle absolutely on time.

M. C. BERRY & COMPANY, Hayneville, Ala., U. S. A.

Western Beekeepers' Association, and they each gave of their experience in a manner that was very much appreciated by the people in attendance. Taken as a whole, our meeting was quite a decided success.

O. F. Whitney, Secretary.

Texas Honey Producers

January 17, 18 and 19, the stockholders of the Texas Honey Producers' Association met at the headquarters in San Antonio. This was the largest meeting of the Association ever held. Many who have been members of the Association since its beginning visited the headquarters for the first time.

The financial report showed that even in these unsettled times, things were in fine shape. Because of the increased capital stock from \$15,000 to \$65,000, nine directors were selected. Of the \$65,000 only a very few shares are unsold.

The members voted to become affiliated with the American Honey Producers' League and to help in the advertising campaign of that body.

The following directors were elected:

W. C. Collier, Hillsboro (formerly Goliad), President.

W. O. Victor, Uvalde, Vice President.

Alma M. Haselbauer, San Antonio, Secretary.

Louis H. Scholl, New Braunfels.

Wm. Zimmerman, San Antonio.

Ambrose Johnson, Laredo.

R. A. McKee, Velasco.

E. G. LeSturgeon, San Antonio, Manager.

The annual meetings are always accompanied by social meetings, as this is conducive to the fraternal feeling of the Association. The annual Mexican supper was held at Casa del Rio with a large number present.

The last day was spent in inspecting the packing plant. The new blending tanks, with their attendant net-weight fillers and can pluggers, were in operation. This was the first visit of the members to the packing plant, and it was of such interest to them that the most of the day was spent there. On the final meeting a number of resolutions were adopted, among which is the following:

Whereas, The beekeeping world has lost through death its most beloved member,

Resolved, That the Texas Honey Producers' Association hereby expresses its debt of homage and gratitude to the memory of Dr. C. C. Miller, and sanctions the movement for the establishment of a Fellowship in Beekeeping in some one of our Agricultural Colleges as a fitting memorial to him, and requests that its members support the movement for

the establishment of this memorial, and further

Resolved, That they commend the action of the beekeepers of America who inaugurated this movement and upon whose shoulders falls the burden of its establishment, and assure this committee that they have the support of the Texas Honey Producers' Association.

Use of Honey

The Department of Agriculture of the Province of Quebec is issuing Bulletin No. 68 in both English and French, upon "The Use of Honey and of Maple Sugar in Cooking." It is a 16-page pamphlet which contains about 50 different recipes for making honey food preparations, drinks and candies, and a few similar directions for the use of maple sugar and syrup. The bulletin was prepared by Mrs. B. L. Vaillancourt.

Heavy Loss Last Winter

The last year was a very good honey year. The fatality of 1920 will not be forgotten for a long time, 75 to 80 per cent would be placing the loss below the actual count. The colonies that were left did well during the season. Honey sold at 35 to 50 cents per pound; good markets in coal towns. I have been in the bee business over 50 years.

Alonzo Sides.

Pennsylvania.

Here's your chance to Save Many Dollars from our Bargain List, part of which is given

Send for Complete List

Everything new and fully guaranteed. Prices f. o. b. New York.

12 and 16 oz. tall, round glass jars, with cardboard lined caps, in 2 doz cardboard shipping cases, gross \$7.15

500 8 and 10-frame Excelsior Covers ----- 39c each 1,000 Unspaced all wood Fr., Reg. Top Bar 5½c each

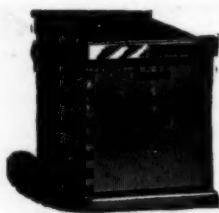
300 8-frame Reversible Cypress Bottom-boards 65c each 2,500 Shallow Extracting Fr. ----- 5c each

4,000 All wood Frames, Langstroth size ---- 4½c each 500 Shallow Extracting Supers, with Frames \$1 each

A complete list and samples mailed on request.

Let us render your old combs. We guarantee to extract the last drop of wax. Send for price list and shipping tags.

Address **THE DERROY TAYLOR CO., Newark (Wayne Co.), N. Y.**



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We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today*

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J. W. ROUSE, Mexico, Missouri

A. M. HUNT, Goldthwaite, Missouri

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Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of the month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

SWEET CLOVER SEED

FOR SALE—White blossom sweet clover seed, pure and clean, can't be beaten for soiling, pasture, hay or ensilage. Grows well in any climate and thrives on run-down or depleted soils or waste land. Price \$10 per bushel. Special prices on large quantities. New bags 65c each.
O. Honsberger, Rt. No. 1, Stouffville, Ontario.

BEST quality white sweet clover seed, raised on my farm in Nebraska, cleaned and scarified, at \$12 per bushel. In less quantities 25c per pound. Frank C. Pellett, Hamilton, Ill.

FOR SALE—White sweet clover seed. By express, collect, 100 lbs., \$15; 50 lbs. \$8, and 25 lbs., \$4.25. Smaller quantities by mail in not less than 5-lb. lots, for 20c a pound, delivered to buyer's address.

Mammoth Sweet Clover Seed Co.,
Hayneville, Ala.

BEEES AND QUEENS

Lower Price. Top Quality. Atwater's Honey.

PACKAGE BEES and nuclei, also Italian queens. No disease in this section. Years of experience in shipping bees. For prices and terms address
Allenville Apiaries, Allenville, Ala.

PROLIFIC GOLDEN QUEENS, each \$2; tested \$4. F. Barber, Lowville, N. Y.

HEAVY LAYING Italian queens that produce hustling 3-banded workers. Untested, \$1.25; tested, \$2. Safe delivery and satisfaction guaranteed. There is no disease in my apiaries. Order now and get them on time.

P. M. Williams, Ft. Deposit, Ala.

QUEENS—H. Brenner strain. Three-banded Italian. Equaled only by the best. Untested, \$1.50 each, \$15 per dozen.

Dr. A. Wright, Kingsbury, Texas.

FOR SPRING DELIVERY—One good Italian queen, 1 Hoffman standard frame emerging brood, 1 pound live bees, price complete \$6.50, f. o. b. Bordeloville. Queen introduced, mated, laying enroute; loss in transit replaced if noted on express tag by agent; no disease in State. References given. Orders booked, May delivery, one-fifth cash. Orders filled in rotation. Successor to J. F. Archdeken, Jess Dalton, Bordeloville, La.

MOTT'S NORTHERN BRED ITALIAN QUEENS—Select untested, \$1.50; 6, \$8.50; 12, \$15. Select guaranteed pure, or replace, \$1.75. Select tested, \$2.50 each. Plans "How to Introduce Queens, and Increase," 25c.
E. E. Mott, Glenwood, Mich.

FOR SALE—35 stands of bees. Ten hives are standard, 25 are sectional hives. All are 10-frame. 35 section supers; 25 extracting supers with drawn combs, all for \$375, or best offer. Buyer to ship same.
L. A. Schwab,
1340 Merchant St., St. Louis, Mo.

FOR SALE—Pure Italian queens and nuclei. One untested queen, \$1.50; 12, \$15. Tested queens, \$2.50 each. Nuclei, 2-frame nucleus, \$5; 3-frame, \$6.50. Add price of queen wanted to price of nucleus.
Frank Bornhoffer,
Rt. 17, Mt. Washington, Ohio.

BEEES AND QUEENS from my Carolina apiaries, progeny of my famous Porto Rican pedigreed breeding stock.
Elton Warner, Asheville, N. C.

FOR SALE—Golden or 3-banded virgins, 60c each, or \$6 per dozen; safe arrival.
R. O. Cox, Rt. 4, Luverne, Ala.

FOR SALE—Nuclei and queens. See our display advertisement.
Cotton Belt Apiaries, Roxton, Texas.

DAY-OLD ITALIAN QUEENS—High quality, low price, satisfied customers. Safe arrival guaranteed in U. S. and Canada. Safe introduction. Prices: 1, 75c; 12, \$7.20; 100, \$60. Write for circular early.
James McKee, Riverside, Calif.

BEEES BY THE POUND—Also pure-bred queens. Booking orders now for delivery after March 15. Everything guaranteed.
Brazos Valley Apiaries, Gause, Texas.

FOR SALE—June delivery, 1 untested queen, \$1.50; 12, \$14. One select, \$1.75; 12, \$17. One pound bees, \$3.50; 2-lbs. \$5.50.
I. F. Miller, Brookville, Pa., R. No. 2.

BEEES—2-pound packages, with queens from our best breeders, 2-band strain; 1 package and queen \$5.50; 25 or more, \$5.25 each. One-fourth cash books your order. Safe arrival guaranteed. Promptness and efficiency our motto.
Caney Valley Apiaries,
J. D. Yancey, Mgr., Bay City, Texas.

GUARANTEED 2-band and golden queens. Booking orders now. Begin shipping March 15. Ask for 1921 circular, free.
Dr. White Bee Co., Box 71, Sandia, Texas.

FOR SALE—Black bees, 2 lbs. and queen for \$6.25, parcel post prepaid. One-fourth down, balance just before shipping. Can ship beginning April 10.
Carl L. Wilson, Mount Vernon, Ga.

FOR SALE—Leather colored Italian queens, tested, until June 1, \$3.50; after, \$2. Untested, \$1.25; 12, \$13. Root's goods at Root's prices.
A. W. Yates,
15 Chapman St., Hartford, Conn.

HARDY ITALIAN QUEENS, \$1 each.
W. G. Lauver, Middletown, Pa.

MR. BEEKEEPER—If you enjoy preparing supers and removing honey, then you will be wise to head your colonies with my vigorous Italians. See larger ad elsewhere.
Herman McConnell, Robinson, Ill.

FOR SALE—Honey Brook Farm can supply you promptly, beginning April 10, with the very best three-banded Italian queens, one grade, select untested, \$1.50 each, or \$15 per dozen. Tested, \$2 each, straight; ready April 1. Should you find some queenless colonies this spring, send me your order for a young queen to save them. I will not disappoint you. I have the bees and can deliver the goods. Pure mating, safe arrival, and satisfaction guaranteed.
Jasper Knight, Hayneville, Ala.

1921 PRICES on nuclei and queens: 1-frame nucleus, \$3; 2-frame nucleus, \$5; 3-frame nucleus, \$6.50; without queens, f. o. b. Macon, Miss.; 5 per cent discount on lots of 25 or more. Untested queens \$1.50 each, \$15 per doz; tested queens \$2 each, \$22 per doz. No disease; inspection certificate with each shipment. Safe arrival and satisfaction guaranteed in U. S. Queens sold only with nuclei.
Geo. A. Hummer & Sons, Prairie Point, Miss.

GOLDEN and 3-banded Italian queens, tested, \$1.25 each; untested, \$1 each. Will begin shipping April 1.
C. B. Bankston, Buffalo, Texas.

PURE 3-BAND ITALIAN QUEENS—Order now for April and May delivery. Untested, \$1.25; select untested, \$1.50. Delivery, mating and quality guaranteed.
D. W. Howell, Shellman, Ga.

WE want to please you. Our reliable three-banded queens and bees will be ready May 1. All bees are shipped on a standard frame of brood and honey. 1-lb. package bees, no queen, \$3.25; 2-lb., \$4.50; 3-lb., \$5.75. One frame nuclei, no queen, \$2.75; 2-frame, \$4. Queens, untested, \$1.50 each. One-fourth down will book your order.
Oscar Mayeux, Box 15, Hamburg, La.

FOR SALE—Bees for strengthening purposes, 3-frame nuclei of hybrid or black bees on frames containing brood, at \$5.25 f. o. b. Lyons, Ga. No queens included; none for sale. Will be able to start shipping April 20. No disease; safe arrival guaranteed if express agent notes loss on express tag. One-third cash with order. Book your orders at once, as number of nuclei for shipment will be limited.
Otto Diestel, Elza, Ga.

FOR SALE—Utopian quality Italian queens, the kind that satisfy. May 15 to June 10, untested, \$2 each. After June 10, untested, \$1.50 each, 6, \$8. Virgins, 90c each; 6, \$4.75.
Utopian Apiaries, Amboy, Minn.

THE ITALIAN QUEENS OF WINDMERE are superior three-banded stock. Untested, \$1.50 each, six for \$8; tested, \$2.50 each; select tested, \$3. Bees by the pound; write for prices.
Prof. W. A. Matheny,
Ohio University, Athens, Ohio.

FOR SALE—Golden Italian queens, untested, \$1.50 each, dozen \$14. Bees by the pound a specialty. Write for prices on bees.
E. A. Simmons, Greenville, Ala.

FOR SALE—Queens and bees, Italians and goldens, \$1.50 each, \$15 per dozen; 1 lb. bees, \$5, 2 lbs. bees, \$9. If queen is wanted with bees add the price of queen. Safe arrival and satisfaction guaranteed in United States or Canada. Cash or certified check must accompany all orders where parties are not known or satisfactorily rated.
Graydon Bros., Rt. 4, Greenville, Ala.

FOR SALE—Root's strain of golden and leather-colored Italian queens; bees by the pound and nuclei. Untested queens, \$1.50 each; select untested, \$2 each; tested, \$2.50 each; select tested, \$3 each. For larger lots write. Circular free.
A. J. Pinard,
440 N. 6th St., San Jose, Calif.

NUCLEI FOR 1921—Now booking orders for 1921 delivery. Italian nuclei (with queen), \$6.50 each. Hybrid bees, with pure Italian queen, \$5.50 each. Terms, one-third down with order. No disease. Safe arrival and satisfaction guaranteed.
A. R. Irish, Doctortown, Ga.

I BUY BEES in colonies. If you have one or more, write.
Frank Coyle, Penfield, Ill.

FOR SALE—Will now book orders for our high-grade 3-banded Italian bees on wired Hoffman frames, for May and June delivery, beginning May 20. In 1920 we shipped 50 3-frame nuclei to a party in Montana without a single loss; no foulbrood. Our bees have been inspected by State Bee Inspector, in 1920. One full colony in 3-frame D. D. hive, with select tested queen, \$17; one 3-frame nucleus, with select tested queen, \$8; one 2-frame nucleus, with select tested queen, \$7; one 2-lb. package bees, with untested queen, in June, \$6.50; one 1-lb. package bees, with untested queen, in June, \$4. Prices on queens given later. Terms, 10 per cent with order; balance first of month in which bees are to be shipped, or 5 per cent discount cash with order. Safe arrival guaranteed.
J. W. Bittenbender, Knoxville, Ia.

THREE-BAND BREEDERS from one of the heaviest honey-gathering strains in the State. \$10 each. Delivery May 15.
A. V. Small, Augusta, Kans.

FOR SALE—Three-banded; Italian queens untested, \$1.50 each; 6, \$7.50; 12, \$14. Select untested, \$1.75 each; satisfaction guaranteed.
W. T. Perdue & Sons,
R. No. 1, Fort Deposit, Ala.

WE are booking orders for our golden Italian queens for spring delivery after April 15. Untested queens, 1, \$1.50; doz., \$15; select untested queens, 1, \$1.75; doz., \$18; virgin queens, 1, 75c; doz., \$8; tested queens, 1, \$3; doz., \$36. Safe arrival guaranteed.
Tillery Brothers, Georgiana, Ala.

FOR SALE—Large, hardy, prolific queens: 3-banded Italians and goldens; pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness and color. Untested, \$2 each; 6, for \$11; 25 for \$45; tested queens \$3 each, 6 for \$16.
Buckeye Bee Co., Box 445 Massillon, Ohio.

EDSON APIARIES now booking orders for queen bees for delivery during season of 1921. Prices: One untested queen, \$1.25; 50 untested queens, \$57.50; 100 untested queens, \$100. Orders filled in rotation; first shipments March 1, 1921.
Edson Apiaries, Gridley, Calif.

BOOK YOUR ORDERS for QUEENS now—Goldens, \$2; tested, \$3; banded, \$1.50; tested, \$2.50; six or more, 10 per cent less.
Clover Leaf Apiaries, Wahoo, Neb.

WE are now booking orders for early spring delivery of two and three-frame nuclei, with untested or tested queens. Write for prices and terms. We also manufacture cypress hives and frames.

Sarasota Bee Co., Sarasota, Fla.

PURE ITALIAN QUEENS—Golden or leather colored, packages and nuclei; 1 untested queen, \$1.50; 6, \$7.50; 12, \$13.50; 50, \$55; 100, \$100; virgins, 50c each; packages, 24 and under, \$2.25 per pound; 25 and over, \$2 per pound; nuclei, 1-frame, \$4; 2-frame, \$6; 3-frame, \$7.50; queens extra. One-story 10-frame colony with queen, \$12.

Golden Star Apiaries,

R. 3, Box 166, Chico, Calif.

BEEES AND QUEENS from my New Jersey apiary J. H. M. Cook,
141st 84 Cortland St., New York City.

PACKAGE BEES AND PURE ITALIAN QUEENS—Booking orders now for spring delivery. Circular free. J. E. Wing,
155 Schiell Ave., San Jose, Calif.

HIGH GRADE ITALIAN QUEENS—Send for catalog.

Jay Smith, R. 3, Vincennes, Ind.

BEEES BY THE POUND, ALSO QUEENS—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas,
E. B. Ault, Prop.

HONEY AND BEESWAX

Lower Price. Top Quality. Atwater's Honey.

FOR SALE—White clover comb honey; also extracted in 10-lb. pails.

W. L. Ritter, Genoa, Ill.

FOR SALE—Choice clover extracted honey, \$20 per case of two 60-lb. cans. Write for price for large quantities. Fifty cases No. 1 comb honey.

J. D. Beals, Oto, Iowa.

FOR SALE—Well ripened extracted clover honey, 20c per pound. Amber and buckwheat extracted 17c, in 60-lb. cans. Five-pound pail clover \$1.25. Buckwheat and amber \$1 per pail. Light amber in barrels 12½c per pound; also have a dozen cases buckwheat comb at \$5 and \$6 per case of 24 sections.

H. G. Quirin, Bellevue, Ohio.

FOR SALE—Choice white clover extracted honey, \$20 per case of 2 60-lb. cans, f. o. b. Holgate.

Noah Bordner, Holgate, Ohio.

FOR SALE—Extra quality white sweet clover extracted honey in 60-lb. cans; candied, very white, \$12.50 per can, 2 cans \$24; new cases.

J. B. Sanderson, Fredericksburg, Ohio.

FOR SALE—Choice light amber honey in 60-lb. cans; also in 10 and 5-lb. pails. Please write for price and sample.

F. W. Luebeck, R. 2, Knox, Ind.

FOR SALE—Clover honey of the finest quality, very light in color, excellent body and flavor surpassed by none; 60-lb. cans, two to the case, at \$24 per case.

Longfellow Bros., Hollowell, Maine.

FOR SALE—Extracted honey. Write for prices.

A. L. Kildow, Putnam, Ill.

FOR SALE—Honey. Immediate shipment f. o. b. New York, in 60-lb. tins: Calif. white orange, 19c lb.; Calif. white sage, 16c lb.; white sweet clover, 14c lb.; Calif. L. A. sage, 13c lb.; West Indian L. A., 10c lb.; West Indian L. A., 10-lb. tins, 6 per case, 15c lb.

Hoffman & Hauck, Woodhaven, N. Y.

FOR SALE—Honey. A car load of white honey, about 70 cases of 60 lbs., 160 cases 10-lb. pails, 80 cases 5-lb. pails, 40 cases 2½-lb. pails. Address

L. A. Coblentz, Rigby, Idaho.

FOR SALE—Finest Michigan raspberry, basswood and clover honey in 60-lb. cans, 20c per pound. Heartcase and aster, 18c. Free sample.

W. A. Latshaw Co., Carlisle, Ind.

NEW HONEY. NEW PRICES—Supply your customers, finest alfalfa-clover honey, extra strong cases, \$11.50 for one 60-lb. can, \$21.60 case of 3, all f. o. b. here. Write for prices large lots. Two carloads sold; plenty on hand.

E. F. Atwater, Box 37J, Meridian, Idaho.

FOR SALE—9,000 lbs. of fine clover and basswood extracted honey, put up in new 60-lb. cans, 16c f. o. b. Grangeville.

C. E. Keister, Orangeville, Ill.

WANTED—White clover honey, comb and extracted, one case up.

Frank Coyle, Penfield, Ill.

FOR SALE—Extracted honey in 60-lb. cans, 2 cans in a box, white clover and basswood blend, per can \$11.40. Light amber, fine, \$10.80; amber \$10.20. Sample 10c.

J. W. Bittenbender, Knoxville, Ia.

FOR SALE—Amber honey, 2 60-lb. cans per case, 15c per pound; less in 10-case lots.

Arthur Kuerston, Shreveport, La., Gen. Del.

FOR SALE—Finest quality extracted honey in 60 lb. square cans 2 cans per case. State how much you can use and I will quote you on same.

Angus M. Paterson,
212 E. 5th St., Flint, Mich.

FOR SALE—Clover and buckwheat honey, either comb or extracted, at reduced prices; any style container. A postcard will bring our quotations.

The Deroy Taylor Co.,
Wayne Co., Newark, N. Y.

WANTED—Comb and extracted honey.

The L. H. Snider Apiaries, Auburn, Ind.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co.,
204 Walnut St., Cincinnati, Ohio.

SUPPLIES

Lower Price. Top Quality. Atwater's Honey.

FOR SALE—200 2-lb. shipping cages. These are of the E. B. Ault make. Ault shipped me 200 packages last spring without a single loss. Will take \$30 cash, or trade for 7 2-lb. packages of bees, shipped April 10.

C. E. Keister, Orangeville, Ill.

FOR SALE—Full line of new and second-hand Jumbo and Langstroth bee supplies at modest prices. Send for complete list.

The Hoffman Apiaries, Janesville, Minn.

FOR SALE—New and second-hand hives, frames, supers, covers, inner covers, bottoms, division-boards, hive-stands. Ask for particulars.

F. D. Bowers, Sugar Grove, Pa.

FOR SALE—200 absolutely new 10-frame hives complete, consisting of hive-bodies, tops, bottoms, tin rabbets, nails and Hoffman self-spacing frames knocked down, in lots of 5, \$14; 200 full-depth supers with frames, \$1.20 each; 500 lbs. of medium brood-foundation at 78c per pound.

A. Irish, Doctortown, Ga.

WANTED—To quote special prices on queen cages in quantity lots, to breeders. State quantity.

A. G. Woodman Co., Grand Rapids, Mich.

HOFFMAN FRAMES and cypress reversible bottom-boards, new, in flat. Money-saving prices.

Elton Warner, Asheville, N. C.

SAVE MONEY on your sections, shipping cases, tin and glass honey containers, etc. Our free price list tells you how.

The Rattray-Hamilton Co., Almont, Mich.

WRITE FOR PRICES on my cypress bee-hives and supplies.

J. Tom White, Dublin, Ga.

FOR SALE—500 section holders, used but little, \$3.25 per 100.

Edwin Collins, R. R. 1, Emporia, Kans.

FOR SALE—Several hundred used comb-honey supers for 1¼ sections, 8 and 10-frame, good condition, no disease.

A. F. Lewis, Leroy, Minn.

HONEY EXTRACTORS at half price. Must vacate right soon. Send for particulars.

A. R. Seaman, S. Connellsville, Pa.

FOR SALE—100 cases new 60-lb. cans in second-hand cases, packed two to the case. Cases are sound, but have been used once. \$1.30 per case.

Dadant & Sons, Hamilton, Ill.

FOR SALE—Good second-hand double-deck comb honey shipping cases for 4¼x4¼x1¼ sections, 25 cents per case, f. o. b. Cincinnati; terms cash with order.

C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

FOR SALE—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case, f. o. b. Cincinnati. Terms cash with order.

C. H. W. Weber & Co.,
2146 Central Ave., Cincinnati, O.

SEND us a list of goods wanted and will quote you lowest prices. We are the money-saving house. Price list free. Try us.

H. S. Doby & Son, St. Anne, Ill.

WANTED

Lower Price. Top Quality. Atwater's Honey.

WANTED—One copy Alexander's writings on Practical Bee Culture.

Lynn S. Silsbee, Dansville, N. Y.

WANTED—Beeswax; also old combs and cappings to render on shares.

F. J. Rettig, Wabash, Ind.

WANTED—Second-hand extractor.

E. L. Garrow, 209 E. Magnolia St.,
Lakeland, Fla.

WANTED—Beeswax. At present we pay 34c per pound in cash and 36c in trade for clean yellow average wax, delivered Denver. The Colorado Honey Producers' Association, Denver, Colo.

WANTED—Partner, beekeeper with \$1,000; must be good, honest Catholic. Write for particulars.

Paul Jackson, Klaber, Wash.

WANTED—Bees in straight-combed Standard L-framed hives.

Amos Burhans, Waterloo, Iowa.

WANTED—200 or less colonies of bees for spring delivery. Any style hive or box. Remembering 10c honey is in sight for 1921.

A. W. Smith, Birmingham, Mich.

WANTED—A good honey location and bee outfit.

Delbert Lhommedieu, Colo, Iowa.

WANTED—Bees, with or without location.

F. W. Prase,
1717 Blake Boulevard, Cedar Rapids, Ia.

THAGARD'S ITALIAN QUEENS

BRED FOR QUALITY

After years of breeding from some of the best three-banded stock imported from Italy, we have brightened the color and retained the good qualities of their mothers. I do not breed for quantity, but breed for quality. My queens have proven this to thousands of beekeepers who have tried them. They are hardy, prolific, gentle, disease-resisting and honey producers. Book your order early for spring delivery.

Untested, 1, \$2; 6, \$5; 12, \$15.

Select untested, 1, \$2.25; 6, \$10; 12, \$18.

Tested, 1, \$3; 6, \$16; 12, \$28.

Select tested, 1, \$5; 6, \$25; 12, \$50.

Safe arrival, pure mating, and perfect satisfaction guaranteed. Circular free.

V. R. THAGARD, Greenville, Ala.

WANTED—Beeswax, old combs and cappings for rendering on shares. Also wax accepted for trade. Top market prices offered.
A. I. Root Co., Council Bluffs, Iowa.

WANTED—Your order for "Superior" Foundation. Prompt shipments at right prices.
Superior Honey Co., Ogden, Utah.

SITUATIONS

Lower Price. Top Quality. Atwater's Honey.

WANTED—Young men with some experience, to work with bees coming season. Modern equipment. Give experience, age, wages, reference.
J. B. Merwin, Prattsville, N. Y.

WANTED—Position by young man in apiary. One year's experience.
F. L. Schultz, 1445 7th St., Milwaukee, Wis.

WANTED—Position in apiary; 21 years old, understand beekeeping; prefer location in Iowa, Minnesota, Michigan or Illinois. State living conditions, etc., fully in first letter.
Harold Achtenhagen,
2433 Prairie St., Milwaukee, Wis.

WANTED—Situation by experienced beekeeper; shares or salary. Good references. State proposition in first letter.
N. B. Armstrong, 406 Center St., Ithaca, N. Y.

WANTED—Helper in beeyard. Give age, experience and wages wanted on basis of board furnished.
Mathilde Candler, Cassville, Wis.

WANTED—Experienced beeman; married man preferred. State in first letter experience and ability, age, nationality and wages wanted.
W. J. Stahmann, Clint, Texas.

WANTED—An experienced queen breeder for the season of 1921. Give age, reference and state wages demanded in first letter.
M. C. Berry & Co., Hayneville, Ala.

WANTED—One experienced man and students, clean habits, able-bodied and willing workers, as helpers with our more than 1,000 colonies. Opportunity to learn the business from A to Z; 1920 crop 122,000 pounds; theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter.
E. F. Atwater, Meridian, Idaho.
(Former Special Field Agent in Beekeeping, U. S. Department of Agriculture).

WANTED—Position with good beeman, wages or shares. Ten years experience in all lines of beekeeping.
Willett J. Cass,
1029 W. 7th Ave., Denver, Colo.

WANTED—Two young men, able-bodied, willing to work, clean in body and mind, who want to learn beekeeping and are willing to exchange faithful services for instruction from a man with almost forty years of extensive experience in beekeeping, board and some financial remuneration. Have twelve apiaries.
R. F. Holtermann, Brantford, Ont., Canada.

WANTED—Man with some experience to work with bees coming season. State age, experience and wages wanted, based on our furnishing board.
The Rocky Mountain Bee Co.,
Box 1319, Billings, Mont.

WANTED—One experienced man, and students or helpers, in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference and wages wanted.
W. A. Lathaw Co., Clarion, Mich.

WANTED—A live young man to help me during season of 1921.
Allen Latham, Norwichtown, Conn.

WANTED—Two comb-honey men for season of 1921. Give experience, age, and wages expected.
B. F. Smith, Jr., Fromberg, Mont.

WANTED—Will give experience and fair wage to active young man not afraid of work, for help in large, well-equipped set of apiaries for season starting April. State present occupation, weight, height, age and beekeeping experience, if any.
Morley Pettit, The Pettit Apiaries,
Georgetown, Ont.

FOR SALE

Lower Price. Top Quality. Atwater's Honey.

FOR SALE or EXCHANGE—2 H. P. Bull's Eye engine equipped with Webster magneto, in first-class condition. First check for \$30 takes it, or will exchange for bees in good hives; or what have you to trade? Also large calibre rifle for sale cheap.
F. J. Shotwell, Martelle, Iowa.

FOR SALE—At cut prices, 1 1/4 section holders, flat. Plain sections, two sizes 8-frame empty bodies. Write.
Specialty Farm, Rockford, Minn.

FOR SALE—Owner wants use on one of our outside warehouses, so we must move this stock; slightly dusty and shopworn: 1-story 8-frame hives, packages of 5, \$15. Also a few 10-frame, \$17.50. Offer good only as long as this stock lasts.
A. G. Woodman Co., Grand Rapids, Mich.

FOR SALE—Twenty-acre farm with ginseng and seal bed; good land and location. Nice buildings, equipped with furnace, gas lights and water system. Modern bee cellar and honey house. Will sell, or rent with 200 colonies bees.
L. Francisco, Dancy, Wis.

FOR SALE—Five hive-bodies, 10 Hoffman frames, \$17; also 5 Danz hives.
S. Collyer, Black Mt., N. C.

FOR SALE—30 colonies of bees in 10-frame hives spaced 9 frames to the hive. Shipment to be made about June 1, after they are unpacked. Also write for prices on what you may want in bee supplies.
F. J. Rettig, Wabash, Ind.

FOR SALE—2 1/4-acre cherry orchard, situated in a small town on the shore of Kootenay Lake, in the mountains of British Columbia. An ideal spot for a bee location. Price \$6,000. Last season's fruit crop returned 25 per cent of the price asked.
J. W. Cockle, Kaslo, B. C.

FOR SALE—4,000 4 1/4 x 1 1/4 plain sections, one-half of them split three sides for foundation; 500 4 1/4 x 1 1/4 plain sections; 600 cleated separators to use with above, all Root Make; separators never used; \$57 money order takes all, less than half present price.
E. F. Atwater, Meridian, Idaho.

FOR SALE—Brand new 6x10 Excelsior printing press, types, rules, \$65 cash. Some bee supplies, magazines. Offer on magazines.
Edwin Dahlquist, North Branch, Minn.

FOR SALE—Fifty colonies of bees in old style Dadant double-walled hives in excellent condition; located in eastern Iowa. If interested, write E. J. B., care American Bee Journal, Hamilton, Ill.

FOR SALE—"Superior" Foundation (Weed process). Quality and service unexcelled.
Superior Honey Co., Ogden, Utah.

FOR SALE—100 cases second-hand cans, packed two to the case, at 60c per case.
Dadant & Sons, Hamilton, Ill.

FOR SALE—5 acres of fine land in good location. A honey house with cement floor, and 300 colonies of bees. Best location for bees in southwest Texas. Will sell by the first of April.
Chas. Heim & Sons, Three Rivers, Tex.

FOR SALE—150 colonies in ten-frame hives, with 2 shallow extracting supers, in good shape, \$15 per colony.
A. A. Lyons, Ft. Collins, Colo.

FOR SALE—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside, Wash.

MISCELLANEOUS

Lower Price. Top Quality. Atwater's Honey.

BLACK SIBERIAN HARES—Enormous sizes, delicious meat and beautiful fur. Write for information and prices.
Siberian Fur Farm, Hamilton, Canada.

FOR SALE—White Pekin duck eggs; good laying strain, \$2.50 per setting of 12 eggs, postpaid.
J. B. Sanderson, Fredericksburg, Ohio.

IN answer to inquiries, I will send enough coreopsis seeds, the great fall swamp honey plant, to plant a plot in your flower garden, where you can raise your seed, with directions, for 50 cents. C. B. Shortridge, M. D.,
Lima, Del. Co., Pa.

I will gladly send to my customers postage money for the return of my 3-pound beecages, sent them with bees the past two seasons. I need them. They are worth \$1 apiece to me. Please notify me how many you have.
Jasper Knight, Hayneville, Ala.

WANTED—Information as to the whereabouts of my sister, Mrs. Emma or Wm. Lafferty. I last heard from her in Sioux County, Neb., from where the family moved to some point in Illinois. An estate awaits her or her children. W. B. Wheelock, Greenville, Plumas Co., Cal.

THE DOMESTIC BEEKEEPER, becoming known as "the livest bee journal published," reaches every interest, contains good articles, timely information, all the news worth printing. Monthly, \$1.50 per year. Sample copy free.
The Domestic Beekeeper, Lansing, Mich.

GRANULATED HONEY SLIPS—100, 20c.
Dr. Conney, Buck Grove, Iowa.

DR. MILLER'S BEE SONGS are in "Songs of Beedom." Ten songs for 20 cents, postpaid; 2-cent stamps taken. Also Teddy Bear souvenir postal cards, 10 for 10 cents. Address Geo. W. York, Box 84, Spokane, Wash.

WANTED—Old bee magazines. We have several customers who wish to complete their files of American Bee Journal and other magazines relating to beekeeping. The early volumes are especially desired. State what you have and price wanted in first letter.
American Bee Journal, Hamilton, Ill.

GOLDEN ITALIAN QUEENS

	May 1 to July 1.			July 1 to Nov. 1.		
	1	6	12	1	6	12
Untested	\$2.50	\$12.00	\$22.00	\$2.00	10.00	\$18.00
Select Untested	2.75	13.50	24.00	2.25	12.00	20.00
Tested	4.00	22.50	40.00	3.50	10.50	38.00
Select Tested	4.50	25.00	45.00	4.00	22.50	40.00

BREEDERS \$12.50 TO \$25.00

10 per cent additional for Exported Queens. Queens for Export will be carefully packed in long distance cages, but safe delivery is not guaranteed.

NO NUCLEI, FULL COLONIES OR POUND PACKAGES.

BEN G. DAVIS, Spring Hill, Tenn.

FREE

WE ARE OFFERING SOUTHERN TUBE ROSE BULBS AT SEVENTY-FIVE CENTS PER DOZ.

And with the purchase of every two dozen sale I will send you **FREE ONE OF MY HAND PAINTED BULB OR FERN CONTAINERS**

SCOTT, THE FLORIST, Birmingham, Alabama

TENNESSEE-BRED QUEENS

Forty-nine Years' Experience in Queen-Rearing
Breed Three-Band Italians Only

	Nov. 1st to July 1st			July 1st to Nov. 1st		
	1	6	12	1	6	12
Untested Queens.....	\$2.50	\$12.00	\$22.00	\$2.00	\$10.00	\$18.00
Select Untested.....	2.75	13.50	24.00	2.25	12.00	20.00
Tested.....	3.50	20.00	35.00	3.00	16.00	30.00
Select Tested.....	4.00	22.50	40.00	3.50	18.50	35.00

Select tested, for breeding \$7.50

The very best queen tested for breeding \$15

Capacity of yard 6000. I sell no bees by the pound or nuclei except with high priced tested and breeding queens

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed

JOHN M. DAVIS, Spring Hill, Tenn.

FOR SALE

IF YOU WANT THE CHEAPEST, BUY THE BEST

I am prepared to furnish for the season of 1921 twenty-five hundred two and three frame nuclei of my bright 3-banded Italian bees, headed with young, vigorous queens. These bees are free from disease, and safe arrival guaranteed. Hoffman frames wired and on full sheets of foundation; very few combs over two years old. I am booking orders now. One-fourth or one-half cash with order, balance before shipping.

Two-frame, \$4.25; three-frame, \$5.25. If queens are wanted, add \$1.25 each.

After May 5th I will be ready to mail queens at the following prices: Untested, single \$1.50, six for \$8, twelve for \$15. Tested, \$2.50 each. Select tested, \$3.50 each. Write for prices for large lots.

A. B. MARCHANT, Jesup, Ga.

Reference: Merchants and Farmers Bank of Jesup.



ITALIAN QUEENS



BOOKING ORDERS NOW FOR 1921. QUEENS READY APRIL 1

My Italians are of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, very resistant to foulbrood, and the best of honey gatherers. I have sold a good many queens to parties who are using them in stamping out foulbrood. Will book orders for one-fourth cash, and the balance just before delivery. Will guarantee safe arrival in the United States and Canada.

PRICES FOR APRIL, MAY AND JUNE

	1	6	12		1	6	12
Untested	\$1.50	\$8.00	\$15.00	Tested	\$2.50	\$12.50	\$24.00
Select untested	1.75	9.00	16.00	Select tested	\$3.00	each	

No nuclei or pound packages of bees for sale.

Descriptive circular and price list free.

JOHN G. MILLER 723 C. ST., CORPUS CHRISTI, TEX.

PAINT WITHOUT OIL

Remarkable Discovery that Cuts Down
the Cost of Paint 75%

A Free Trial Package is Mailed to Everyone
Who Writes

A. L. Rice, a prominent manufacturer of Adams, N. Y., discovered a process of making a new kind of paint without the use of oil. He named it Powderpaint. It comes in the form of a dry powder, and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to A. L. Rice, Inc., Manufacturers, 23 North St., Adams, N. Y., and a free trial package will be mailed to you, also color card and full information, showing you how you can save a good many dollars. Write today.

Florida Queens and Bees

Two-frame nuclei with queen, \$6 each. Tested queens, \$2 each. Selected tested, \$3 each.

This golden and three-band Italian stock I am offering has predominated and reproduced itself in the Sand Ridge section of Central Florida for 30 years.

DIXIE BEEKEEPER

A 32-page monthly publication now two years old, devoted to beekeeping and its possibilities, as well as the general interest of beekeepers here in Dixie, \$1 per year. Sample free.

WILDER'S CYPRESS HIVES are durable and satisfactory. A full line of beekeeper's supplies at low prices.

Write for catalog.

J. J. WILDER, Waycross, Ga.



PAT. JULY 30, 1918

C.O. BRUNO NAILING DEVICE

Made for the Huffman Brood Frames. A combined Nailing, Wiring and Wedge Clamping Device. Has been tried and is guaranteed to do accurate work.

PRICE \$7.50

Complete directions for operating are furnished with each device.

Manufactured by C. O. BRUNO
1413 South West Street, Rockford, Illinois

SHE-SUITS-ME queen-bees, prices for 1921: Untested Italians, \$2 each; \$1.75 each for 10 or more, prior to June 15. After June 15, 1 to 9 queens \$1.50 each, 10 to 24 \$1.40 each, 25 and up \$1.25 each.

ALLEN LATHAM,
Norwichtown, Conn.

American Bee Journal 1 year, \$1.50. Dixie Beekeeper 1 year \$1. Both for \$2.25
American Bee Journal 1 year, \$1.50. Beekeeper's Item 1 year, \$1. Both for \$2.25.
American Bee Journal, Hamilton, Ill.

A NEW BEE BOOK

"Dadant's System of Beekeeping"
Price \$1.00.

BEE SUPPLIES

We are prepared to give you value for your money. Our factory is well equipped with the best machinery to manufacture the very A-best supplies that money can buy. Only the choicest material suitable for bee hives is used. Our workmanship is the very best. Get our prices and save money.

Eggers Bee Supply Mfg. Co.

Incorporated

ROUTE 1, EAU CLAIRE, WIS.

DOWN IN COST

TINS AND GLASS JARS

ORDER NOW FOR NEXT CROP PACKING

2 1-2-POUND CANS

2 dozen reshipping cases.....	\$ 1.45 per case net
In 100-can crates.....	6.50 per crate net
In 200-can crates.....	11.00 per crate net
In 500-can crates.....	24.50 per crate net

5-POUND PAILS WITH HANDLES

1 dozen reshipping cases.....	\$ 1.35 per case net
In crates of 100.....	8.30 per crate net
In crates of 200.....	16.25 per crate net

10-POUND PAILS WITH HANDLES

In one-half dozen cases.....	\$ 1.10 per case net
In crates of 50.....	6.70 per crate net
In crates of 100.....	12.75 per crate net
5-gallon tins, used, good condition, 2 to case.....	\$0.50 per case
5-gallon tins, new, 2 tins to wood case.....	1.35 per case

White Flint Glass, with gold lacqd. wax-lined caps

8-oz. honey capacity cylinder style.....	\$1.50 carton of 3 doz.
15-oz. honey capacity, table jar style.....	1.40 carton of 2 doz.
Quart or 3-pound honey capacity, Mason style.....	1.00 carton of 1 doz.

NOTE: LOW PRICES SUBJECT TO CHANGE AT ANY DATE

HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.

HONEY PRODUCERS TAKE NOTICE

Do you realize that it is only a short time until your bees will be taken out of winter quarters? Have you thought about supplies for next season? Do not wait until swarming time for that means dollars out of your pocket. Order your supplies NOW.

We manufacture and carry in stock a complete line of bee supplies ready for prompt shipment. Send us a list of supplies you will need and we will be pleased to quote you our price. Our 1921 descriptive catalog and price list is now ready for mailing; send us your name and address and we will mail you our catalog.

AUGUST LOTZ COMPANY, Boyd, Wisconsin

PORTER

**BEE
ESCAPE
SAVES
HONEY
TIME
MONEY**



For sale by all dealers.

If no dealer, write factory

R. & E. C. PORTER, MFRS.
Lowtown, Illinois, U. S. A.

(Please mention Am. Bee Journal when writing)

HONEY

If interested in either extracted or comb write for our prices before buying. They are right.

C. C. CLEMONS CO.

DEPT. A

KANSAS CITY, MO.

BARNES' FOOTPOWER MACHINERY

Read what J. E. Parent, of Chariton, N. Y. says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."



W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS



ELECTRIC IMBEDDER

Price without Batteries \$1.50
Not postpaid.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

For sale by all bee supply dealers

Dadant & Sons, Manufacturers
HAMILTON, ILL.

BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Send Us Your Inquiries
A. H. RUSCH & SON CO.
Reedsville, Wis.

EARLY SPRING—BUY NOW

INDICATIONS point to an early spring. You'll want bee supplies on hand when the season starts.

Order now. Deliveries can then be made

in plenty of time. For 40 years "falcon" bees and supplies have been giving satisfaction. Let them help you make this year the biggest and best ever.

Write for our red catalog

W. T. FALCONER MFG. CO., Falconer, (near Jamestown) N. Y., U. S. A.

"Where the best bee-hives come from"

BEE SUPPLIES

ROOT'S GOODS AT FACTORY PRICES WITH WEBER'S SERVICE

We carry several carloads of bee supplies, and are able to give prompt shipment at all times. Our motto is a customer must be satisfied. Give us a trial and we will show you how quickly we will answer your correspondence. Send your order and it will follow 24 hours after we receive it. Our new catalog will be ready about January 15; send for same. We have thousands of satisfied customers, why not you? Send a list of your wants and we will quote you.

C. H. W. WEBER & CO., 2163-65-67 Central Ave., Cincinnati, O.

BOYER'S "QUALITY-FIRST"

TIN HONEY and SYRUP CONTAINERS

are the best and cheapest in the long run
Prompt shipments of all standard sizes and styles

CAN MANUFACTURERS SINCE 1892
LARGE CAPACITY

If you cannot secure them from your usual supply house, write us your needs

BALTIMORE, MD. W. W. BOYER CO., Inc. 2327-2359 Boston St.

BINDING FOR BEEKEEPERS

We do all kinds of book binding, such as magazines like the "American Bee Journal," or any other publication. Also make any style blank book, either printed or unprinted heading.
LUTZ & STAHL, Keokuk, Iowa

GOLDEN QUEENS 1921

Untested, \$1.50 each, or 6 for \$8. For 100 lots write for prices. I will begin shipping about April 20, and I guarantee safe arrival and reasonable satisfaction to everybody.

R. O. COX, Rt. No. 4, Luverne, Ala.

BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.

STRAWBERRY PLANTS

Good, strong, well-rooted plants at \$4 and \$5 per Thousand. Also a complete list of the best red and black raspberries, hardy blackberries, fancy gooseberries and currants. A large stock of popular grape vines. Many of our customers are making from \$500 to \$1,200 per acre growing berries from our fruit plants. Send for our free catalog.

BRIDGMAN NURSERY CO., Box 13, Bridgman, Mich

Crop and Market Report

Compiled by M. G. Dadant

AMOUNT OF HONEY ON HAND

The amount of honey still remaining on hand varies greatly with different localities. Practically all small beekeepers report honey all disposed of, or only a small portion on hand, which can be sold before the new crop comes on. This is true from the Missouri River eastward except for some large producers in Pennsylvania, New York, and a few in Michigan, Wisconsin and Minnesota. Even some of these claim they will be able to dispose of their crop by extra effort, selling same at retail. There is, of course, some honey left in the southeast, but not a large quantity, probably 15 per cent of the total crop would catch it.

A few reporters in Iowa, Nebraska and Kansas still have some honey on hand.

Texas reports practically the entire crop disposed of, probably not 5 per cent remaining in the hands of the beekeepers. In the Inter-mountain territory and in the West Coast region is where most of the honey is still held. Colorado, Montana and Idaho still report some 20 to 40 per cent of the honey on hand, as does Washington and Oregon. The reports from these States vary, however, some beekeepers with large crops having disposed of the entire amount. Many of them are encouraged by the efforts they have made toward increasing local sales.

In California it is probable that at least 25 per cent of the honey still remains to be sold.

HOW IS HONEY SELLING

Honey has been selling very slowly, both wholesale and retail, although in the last two or three weeks there has been an increased activity. Within the last few days sugar has advanced from one to three cents a pound, and this, of course, will have an influence upon the honey market, especially if the sugar prices continue to rise.

RETAIL PRICES OF HONEY

The prices recommended and asked for honey are very similar over the entire United States, with an average of about \$1.35 for a 5-pound pail and \$2.50 for a 10-pound pail. The very lowest prices suggested were 85c for 5-pound and \$1.60 for 10-pound, and the highest were \$2 for a 5-pound pail and \$3.75 for the 10-pound. One party reporting suggested that a 10-pound pail of honey should never sell at less than \$2.50, and that it would be better to spend the extra 50c advertising than to make a sacrifice and sell at \$2. No doubt he is right.

SUMMARY

It does not seem in any way impossible that the present supply of honey should be disposed of before the new crop comes on. There is a tendency towards export of honey just now, and more has been exported within the last month than in any like period within the past few months. Sugar is on the advance and probably there will be added tariff put on sugar and on honey also. Very likely the large amounts of honey coming in from foreign countries to the Eastern markets have had a depressing influence upon our markets here. Cuban honey is now selling as low as 4c to 5c per pound in the New York markets. This being the case, buyers of honey will, of course, insist that prices on domestic honey be shaded, and we have heard from one source that some beekeepers in Arizona were offered as low as 5c per pound for amber honey. The usual prices at which car lots are selling are from 8c to 12c for amber honey and from 11c to 15c for the light grade.

Our idea would be that beekeepers should take advantage of a rising market to dispose of their honey. We are of the impression, and we hope, that such a rising market will develop within the next month to six weeks.

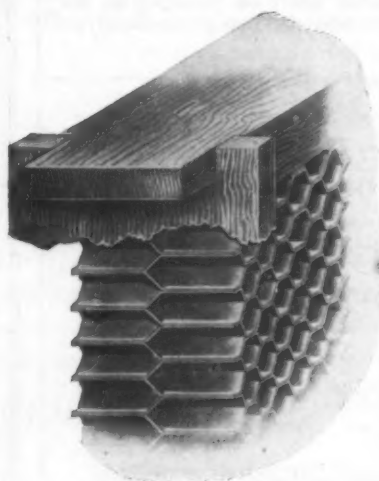
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Pasadena

Prompt and Safe Delivery Guaranteed

DUFFY-DIEHL, Inc., 17-19 South Chester Street, Pasadena, Cal.

MARCH, APRIL, MAY

And the months hurry on to the beekeepers' harvest. You will want to be ready for it with a full line of Root supplies and enough Airco Foundation to see you through. Later, delays will be costly indeed. A single hour of idleness, in the days of honey flow, in ten colonies of bees counts up in dollars and cents.

JUNE, JULY, AUGUST

Will be welcome and profitable months if you are thus prepared. Save money by ordering now. If we can be of any assistance to you, call on us. And clip the following coupon if any suggestions listed thereon are of interest to you. That's our job, and has been for fifty years—boosting beekeepers everywhere.

THE A. I. ROOT CO. OF IOWA, Council Bluffs, Iowa.

Gentlemen:

I agree with you, in that it isn't fair for you to do all the talking. Things are "Looking Up" for me in my Beekeeping, and I am preparing for an interesting and profitable season. For that reason, I am particularly interested in the following:

- _____ Plans for Spring Activity _____ Spring Feeding
- _____ Books that help make Beekeeping more Successful
- _____ Copy of "Gleanings in Bee Culture", the Beekeepers' Magazine
- _____ The New Process Foundation—AIRCO.
- _____ Your Latest Catalog.

I have _____ colonies in _____ frame hives

For your further information I wish to state

Name _____

Address _____

The A. I. Root Co. of Iowa
Council Bluffs, Iowa

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Every year, for 34 years, thousands of people have adopted Olds' Catalog as their farm and garden guide. The carefully tested and selected seeds it offers have produced heavy field crops and successful gardens everywhere. Customers have long since learned that

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Its descriptions, both in word and picture, are truthful in every respect. You can positively depend on garden, flower and field seeds, potatoes, plants and bulbs listed in this book being exactly as represented. All seeds conform to the strict Wisconsin seed laws. When you buy Olds' seeds, good yields are assured from the seed standpoint. You take no chances.



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A postal will do. But don't delay. Start right with right seeds.

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A Standard, Guaranteed TYPEWRITER With Every Modern Writing Convenience

Write Today For Illustrated Circular Describing Try-Before-You-Buy Plan

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Have no superiors—"There's a reason." Are Mendelian bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease-resistant, white comb builders—they deliver the goods.

ITALIANS, 3-banded, line-bred, pedigreed; need no boosting; they speak for themselves.

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PACKAGE BEES

Dependable Three-Band Queens. Prompt service.

Prices right

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STRAWBERRIES AND RASPBERRIES

this summer, if you set our Everbearers. Raise your own small fruits; easier than garden truck. Ever hear of Gibson, that large new strawberry that yields over 7,000 quarts per acre under ordinary weather conditions? If you have one square rod in back yard plant Everbearing strawberries. The coming season means big money for berry growers. On trial grounds our stock is proven before we sell. Our plants are the kind that grow, heavy yielders and true to name. Let us send you free catalog now of wonderfully reduced prices. Currants, grapes, etc.

Fry Bros. Co., West Lafayette, Ind.

South Dakota Meeting

The South Dakota beekeepers will hold their annual convention at Vermillion on March 8 and 9. A good program is promised.

Early Sweet Clover

Shreveport, La., Jan. 22, 1921.

Enclosed you will find a sprig of sweet clover in bloom. How is that for early blooming, when you are probably sitting close to the stove to keep warm? We also saw a bee working on a white clover blossom yesterday. But I do not want you to think this is general. Only here and there we can find them.

The sweet clover was sown by Mr. Pease 3 years ago and is quite a stand now. Am sending you this, thinking it might interest you because it is so early. Arthur Kuersten.

Bees Busy Early Down South

Just a line from the Sunny South. The bees are humming just like it was June (January 28). We have a little yellow flower in bloom and the maples are budding.

The bees are loaded with pollen and bringing in some honey.

The queens have begun to lay in spots. Don't know where the bees are finding honey unless it's violets or the little wild yellow flowers in the fields. Can't find any other source.

J. W. Sprout.

Mississippi.

West Virginia Meeting

The annual meeting of the West Virginia Beekeepers' Association will be held at Charleston, W. Va., March 25 and 26.

Co-operative Effort

The Iowa Beekeepers' Association is undertaking to buy supplies for its members this season. The first estimate amounts to about \$9,000. It is possible to secure much better prices on this quantity of goods than individual beekeepers could get in small lots. Secretary Paddock is handling this extra work without charge to the members. This Association, certainly gives big returns for its membership fee.

TOO LATE TO CLASSIFY

GOOD STOCK, plus long experience in shipping bees make it profitable to buy package bees or nuclei. Write for my new circular.

R. V. Stearns, Brady, Texas.

FOR SALE—500 lbs. of Dadant medium brood foundation at \$75 per hundred. In not less than 50-lb. lots.

M. C. Berry & Co., Hayneville, Ala.

FOR SALE—Incubators, one-fourth price; exchange for extractor, double gun, repeater. Lorenzo Clarke, Winona, Minn.

FOR SALE—60 colonies of Italian bees, enough extra supers and supplies to run an apiary of 150 colonies, for extracting honey. The outfit is worth \$1,600; will sell for \$800. A good honey location. Buy soon so that you can prepare for the spring crop. No bee disease. P. J. Thullen.

327 Walker St., Huntsville, Ala.

QUALITY QUEENS AT QUANTITY PRICES

Breed Three-Band Italians only

PRICES FOR 1921

	Nov. 1 to June 30.			July 1 to Nov. 1.		
	1	6	12	1	6	12
Untested	\$2.00	\$ 9.75	\$18.00	\$1.50	\$8.00	\$15.00
Select Untested	2.25	11.25	19.80	1.75	9.75	16.80
Select Tested	3.50 each			3.00 each		

Breeding queens after June 15, with 2-frame nuclei, \$15.00 each.

Queens are reared from mothers whose colonies are GENTLE, HARDY, and as HONEY GATHERERS will compare with any. Each and every queen reared by the latest and most approved methods, thus insuring queens that are capable of duplicating the excellent characteristics of their mothers.

I rear all my queens personally, and strive for QUALITY instead of quantity. You may rest assured that when you order queens of us you are getting among the best that can be produced. You take absolutely no risk in getting our queens for SATISFACTION and safe arrival guaranteed in the United States and Canada. Foreign shipments at receiver's risk. I sell no bees by the pound, nor nuclei, only with breeding queens. Try and estimate your needs for the approaching season and place your order early.

HERMAN McCONNELL, Robinson, Illinois

HONEY CANS

Let us figure with you on your requirements of Honey Cans. We ship any quantity desired.

WRITE FOR PRICE LIST

ADDRESS

THE UNITED STATES CAN CO., Cincinnati, Ohio
VIRGINIA CAN COMPANY, Roanoke, Va.
BOX 577-D

QUEENS, Select Three-Banded

Write for descriptive circular of our Select Italian Queens. Pure mating, safe arrival and satisfaction guaranteed

	May 1 to June 15			June 15 to Nov. 1		
	1	6	12	1	5	12
Untested	\$2.00	\$10.00	\$18.00	\$1.50	\$ 9.00	\$15.00
Select Untested	2.50	12.00	20.00	2.00	10.00	18.00
Tested	3.50	19.50	36.00	3.00	16.00	30.00
Select Tested	4.00	22.50	40.00	3.50	19.50	36.00

HARDIN S. FOSTER, Columbia, Tenn.

EAGLE "MIKADO"

PENCIL No. 174



Regular Length, 7 inches

For Sale at your Dealer.

Conceded to be the Finest Pencil made for general use.

EAGLE PENCIL COMPANY, NEW YORK

Made in five grades



NOW IS THE TIME

When the market is slow is the time to push local sales by means of well-placed advertising. Our line of honey labels is the finest in the market. If you have not yet received a copy of our catalog send for one today.

CALENDARS, PLACARDS

We are prepared to furnish the queenbee in color, like the one on January's cover, either as a placard or a calendar. These are printed on white enameled cardboard, 7x11 inches in size. Price with your advertisement printed thereon, \$2 per dozen, or \$11 per hundred, postpaid.

We also have the Children's Doll Party, little girls eating honey, on similar cardboard, 9x11 inches, in either calendars or placards, at \$2 per dozen or \$11 per hundred. Make your advertisement brief, as it can be read more readily without too much printing.

AMERICAN BEE JOURNAL, Hamilton, Illinois

ANOTHER NEW BOOK

BEEKEEPING IN THE SOUTH

BY KENNETH HAWKINS



There is a general demand for a book giving detailed information relating to beekeeping conditions in the South. Kenneth Hawkins, as a beekeeping specialist for the United States Department of Agriculture, visited all the Southern States and has made a special study of the characteristics of this region. This is not a text book of beekeeping, but rather a book of information about a great region where beekeeping offers exceptional possibilities and where there is a great variation of the climate and flora of different sections. Illustrated with many photographs. Mailing weight one pound.

PRICE \$1.25

AMERICAN BEE JOURNAL, Hamilton, Illinois

AMERICAN BEE JOURNAL

THIS IS THE
CYPRESS 'MARK OF
DISTINCTION'



IT'S STAMPED
ON EVERY PIECE OF
'TIDEWATER'
CYPRESS

'ALL
HEART
FOR
BEE-
KEEPERS'
USE
(Of Course)

THE MAN WHO BUYS CYPRESS MINUS THE
ARROW TRADE-MARK AND THINKS HE IS
GETTING

"TIDEWATER" CYPRESS

"The Wood Eternal"

IS EITHER EXTREMELY 'SHORT-SIGHTED'
OR EASILY SATISFIED, OR BOTH.

WISE MEN SAY 'SHOW ME'

(THE TRADE MARK)

'ALL
HEART
FOR
BEE-
KEEPERS'
USE
(Of Course)



SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1251 PERDIDO BANK BLDG., NEW ORLEANS, LA., or
1251 HEARD BLDG., JACKSONVILLE, FLA.



ALUMINUM HONEY COMBS

Have you Extracting Combs sufficient for those short
heavy honey flows?

The shallow extracting Aluminum Honey Comb gives you imme-
diate and adequate storage

PRICE LIST

Standard Langstroth (Hoffman brood-frame)
size, each _____ 60c
Shallow Extracting (5 $\frac{3}{4}$ in. deep) size, each-- 50c
Modified Dadant (Jumbo depth) size, each----- 70c

Prices are f. o. b. San Antonio, Texas.
Parcel Post weight, 1 comb _____ 2 lbs.
Parcel Post weight, 10 combs _____ 11 lbs.
Parcel Post weight, 20 combs _____ 20 lbs.

Write for our new catalog containing full description and prices on

LEWIS BEEWARE, DADANT FOUNDATION, ALUMINUM HONEY COMBS
TEXAS HONEY PRODUCERS ASSOCIATION
1105 S. Flores St. P. O. Box 1048 San Antonio, Texas

E. G. LE STOURGEON, Mgr.

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We Want YOU
to be the Judge.**

The A. I. ROOT COMPANY
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For your convenience, prompt service and saving on carriers' charges you can address the A. I. Root Co. at any of the following points, where Airco Foundation is always in stock:

Chicago, 224 W. Huron St.
St. Paul, 290 E. Sixth St.
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San Francisco, 52-54 Main St.
New Orleans, 224 Poydras St.

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Philadelphia, 8-10 Vine St.
Norfolk, 10 Commerce St.
Syracuse, 1631 W. Genesee St.

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